REPORT
PROJECT: 125581-7.03

ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES
RIVERSIDE SOUTH PHASE 17
4775 & 4875 SPRATT ROAD
RIVERSIDE SOUTH COMMUNITY

Prepared for RIVERSIDE SOUTH DEVELOPMENT CORPORATION (RSDC)
by IBI GROUP

July 2020

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1 INTRODUCTION

1.1 Purpose

The purpose of this report is to investigate and confirm the adequacy of public services for the proposed site. This report will review major municipal infrastructure including water supply, wastewater collection and disposal and management of stormwater. This report will also include a Sedimentation and Erosion Control Plan. A review of traffic components will be the subject of a separate report.

This report is being prepared as a technical document in support of the subdivision submission, and was prepared in accordance with the November 2009 “Servicing Study Guidelines for Development Applications” in the City of Ottawa. **Appendix A** contains a customized copy of those guidelines which can be used as a quick reference for the location of each of the guideline items within the study report.

1.2 Background

The Riverside South Community, formerly known as South Urban Community (SUC), is a part of the former City of Gloucester. The Council of the City of Gloucester adopted the first Official Plan for the community in September 1990. The original concept plan for the community served as the basis for both a Gloucester and a Regional OPA. A Master Drainage Plan (MDP) for the community was formulated in June 1992 based on the preliminary land use plan prepared by J. Bousfields and Associates Ltd. in December 1991.

The South Urban Community became a part of the City of Ottawa through amalgamation in 2001 and the new Official Plan of the City of Ottawa designated the areas as “General Urban Area” and “Employment Area” with some adjustments to the urban boundaries. In 2003, the City of Ottawa initiated a Community Design Plan (CDP) for the Riverside South area. The basis of the CDP is the land use plan for the community, which has evolved over the time and has changed significantly since the original plan prepared in early 1990’s.

The South Urban Community River Ridge Master Infrastructure Plan (SUC RR MIP) prepared by Ainley Graham and Associates in 1994 presented a preferred servicing strategy for potable water, sanitary and storm infrastructure in the Riverside South community. The Riverside South Infrastructure Servicing Study Update (ISSU) was issued in 2008 as an update to the SUC RR MIP, to account for modifications to the MDP and CDP since 1994.

There have been significant revisions to the CDP, MDP and City of Ottawa Design Guidelines since 2008 so in June 2017, Stantec helped the City of Ottawa complete an update to the 2008 ISSU for a portion of the Riverside Community called Rideau River Area and which includes the lands proposed to be tributary to Pond 5. The 2017 Riverside South Community Infrastructure Servicing Study Update – Rideau River Area (2017 ISSU) report recognized the approved 2016 CDP which considers changes in land use planning and development densities in accordance with Official Plan objectives. For reference a copy of the 2016 Riverside South Community Design Plan – Land use Plan is included in **Appendix A**. The infrastructure analyses also accounted for existing sewer and infrastructure and the stormwater management pond within the study area. The purpose of the 2017 ISSU report was to present a new preferred potable water, sanitary and stormwater infrastructure servicing strategy for the Rideau River Study area. A copy of Figure 1.1, Riverside South Community and Study Area Boundary, from the 2017 report, is also included in **Appendix A** for reference.

Subsequent to the completion of the revised ISSU, construction of the Riverside South Pond 5 and the River Road reconstruction has been substantially completed. The RSDC Phase 15 lands

and the Claridge River's Edge lands between River Road and Spratt Road are under construction or under detailed engineering design.

1.3 Previous Studies

Since the South Urban Community and Riverside South Community have been planned and developed for over twenty five years, there have been numerous background studies dealing with major municipal infrastructure. Many of those reports are listed in the 2017 Updated Report. For reference, pages 1.4 and 1.5 which list these previous studies from that report, are included in **Appendix A**. The following reports however, were referenced prior to completing this assessment:

1. **Riverside South Community Infrastructure Servicing Study Update (ISSU) – Rideau River Area (Stantec, 2017)** The report is the most current approved document which reviews the provision of major municipal infrastructure, including water supply, wastewater collection and treatment of storm runoff, in the Rideau River Area of the larger Riverside South Community. The report reviewed many of the recommendations from relevant earlier reports including:

    a) 2016 Land Use Plan for the Riverside South Community Design Plan

    b) Riverside South Master Servicing Study (Stantec 2008)

The report provided a macro level servicing plan for the Rideau River Area portion of the Riverside South Community. The subject property is proposed to be developed in accordance with the recommendations of the 2017 Updated report. The more specific details of the development will be part of the final engineering design of the lands.

2. **Design Brief Riverside South Phase 15-1A, 15-1B, 15-2, 4 & Spratt Road prepared for Urbandale Corporation (IBI Group, October 2018, February 2019, August 2019)** These reports are the most current approved document which provides details on the proposed water supply and major and minor storm systems.
3. **Assessment of Adequacy of Public Services 4725 Spratt Road prepared for Claridge Homes (IBI Group, February 2019)** The report outlines the storm, sanitary and water servicing required for the land adjacent to Phase 17.
4. **Design Brief River's Edge Phase 1 prepared for Claridge Homes (IBI Group, June 2020)** The approved report provides details on the proposed water supply and major and minor storm systems.
5. **Riverside South Phase 13 prepared for Urbandale (Stantec, 2017)** The report is approved and contains information regarding the sanitary outlet at the southern end of Ralph Hennessy Avenue.
6. **Riverside South Community Master Servicing Study Update prepared for Riverside South Development Corporation (Stantec, 2008)** The report provided a macro level servicing plan for the Riverside South Community. The subject property is proposed to be developed in accordance with the recommendations of the 2017 Updated ISSU report; however, the eastern portion of the subject lands fall outside the ISSU and as such the Master Servicing Study update is the most recent macro report for this area.

1.4 Subject Property

The current draft plan of subdivision for the subject property is shown on **Figure 1.2** which is included in **Appendix A**. The property covers about 60.6 ha. It is located to the south of the future BRT corridor and east of Spratt Road.

The proposed development will include mid-density and low-density residential units along with park and school blocks and commercial and medium density residential blocks. The site is to be constructed in three phases as shown on **Figure 1.5**. The phases start from north to south with each phase extending from Spratt Road to Ralph Hennessy Avenue.

1.5 Existing Infrastructure

Figure 1.3 shows the location of existing major municipal infrastructure in the vicinity of the RSS Phase 17 development.

A 2250 mm diameter trunk storm sewer at Borbridge and Spratt Road is currently under construction and a 1500 mm diameter storm sewer on Whooping Crane Ridge adjacent to Spratt Road has recently been constructed. A 2400 mm diameter storm sewer is under construction on Solarium Drive at the Andromeda Road/Hydrangea intersection.

On Spratt Road a 525 mm diameter trunk sanitary sewer was recently extended south to the Borbridge intersection and a 300 mm sanitary sewer on Whooping Crane Ridge adjacent to Spratt Road has recently been constructed.

On Ralph Hennessy Avenue at the future BRT a 525 mm sanitary sewer is capped. A 300 mm diameter watermain has recently been extended south on Spratt Road to the Borbridge intersection and on Borbridge a 300 mm has been constructed between Brian Good and Spratt Road. On Solarium, a 400 mm watermain has been extended east to the Andromeda Road/Hydrangea intersection.

1.6 Pre-Consultation

There was a pre-consultation meeting with the City of Ottawa on January 15, 2020. The meeting notes can be found in **Appendix A**. The following are some of the topics reviewed and discussed:

- Zoning information
- Official plan
- Infrastructure
- Noise Study needed
- Traffic Study needed
- Assessment of Public Services Report needed

It should be noted that consultation with the Rideau Valley Conservation Authority and the Ontario Ministry of Environment, Conservation and Parks are to be scheduled forthwith.

1.7 Existing Topography

The property generally slopes from south to north. Contours for the site range between 94 and 102 meters. **Figure 1.4,** which is included in **Appendix A**, shows the general topography of the subject property.

Once developed, the intent will be to maintain existing drainage patterns. For reference, a copy of Drawing GCP-1, Macro Grading Plan from the 2017 ISSU report is included in **Appendix A**.

1.8 Geotechnical Considerations

The following geotechnical investigation report has been prepared by Paterson Group

- Report No. PG5131-1 dated May 29, 2020 for the subject property;

Among other items, the reports comments on the following:

- Site grading
- Foundation design
- Pavement design
- Sub-surface Conditions
- Seismic design
- Corrosion potential
- Site Servicing
- Groundwater Control

In general, the subsurface profile encountered topsoil, underlain by silty sand to clayey silt.

One of the recommendations from that study included grade raise restrictions for the Development. A copy of Figure 2.0, Site Plan from the Report is included in **Appendix A**. That figure shows a grade raise restriction of 1.5 m across the northern half of the site.

1.9 Watercourses and Setbacks

There are no identified Municipal Drains in the 2017 ISSU report.

To our knowledge no assessments to date have found any watercourses or municipal drains within the subject lands. Further analysis will be provided under separate cover by WSP.

2 WATER SUPPLY

2.1 Existing Conditions

As noted in Section 1.5 there are existing watermains in the RSDC Phase 15 lands and Claridge River's Edge lands. A 300 mm watermain is located at Spratt and Borbridge and a 400 mm watermain on Solarium at Andromeda. **Figure 1.3** in **Appendix A** shows the location of the existing watermains.

2.2 Riverside South Community Infrastructure Servicing Study Update – Rideau River Area (2017 ISSU)

The report provided trunk watermain servicing for the Rideau River Area, the location and size of the proposed watermains is shown on Drawing WAT-1 in **Appendix B**.

A hydraulic analysis was conducted for the Rideau River Area trunk watermain as part of the report. The analysis was conducted with the Barrhaven Pump Station operating at a discharge HGL of 147 m and the Ottawa South Pump Station operating at a discharge HGL of 146 m to Zone SUC which includes the Rideau River Area. Water demands were based on recent projections presented in the Riverside South Community Design Plan (CDP) 2016.

Results of the hydraulic modeling under basic day condition shows some areas where the pressure exceeds 552 kPa (80 psi). The high pressure areas are in the low lying land near the Rideau River, and is shown on Figure 5.4 from the Servicing Study Update which is included in **Appendix B**. Buildings in the high pressure area will require pressure reducing valves in accordance with Technical bulletin ISDTB-204.02. The hydraulic analysis showed that no areas fell below the minimum pressure of 276 kPa (40 psi) under peak hour conditions. A fire flow analysis was also conducted which showed that all nodes can provide more than a 13,000 l/min fire flow while maintaining a minimum system pressure of 138 kPa (20 psi).

2.3 Riverside South Community Master Servicing Update – (2008 MSS)

The 2008 MSS covers a larger area than the above noted ISSU. Throughout the majority of the site it is understood that the ISSU is a more recent document, however; the eastern portion of the subject site is outside the ISSU report limits. The 2008 MSS recommends that a 300mm dia watermain be extended southward across the BRT corridor from an existing stub left at Ralph Hennessy Ave. The Proposed Water Servicing drawing WM-1 can be found in **Appendix B**.

2.4 Design Criteria

2.4.1 Water Demands

Water demands have been calculated for the site based on per unit population density and consumption rates taken from Tables 4.1 and 4.2 of the City of Ottawa Design Guidelines – Water Distribution and are summarized as follows:

- Single Family 3.4 person per unit
- Townhouse and Semi-Detached 2.7 person per unit
- Average Apartment 1.8 person per unit
- Residential Average Day Demand 350 l/cap/day
- Residential Peak Daily Demand 875 l/cap/day

- Residential Peak Hour Demand 1,925 l/cap/day
- ICI Average Day Demand 50,000 l/gross ha/day
- ICI peak Daily Demand 75,000 l/gross ha/day
- ICI Peak Hour Demand 135,000 l/gross ha/day

2.4.2 System Pressure

The Ottawa Design Guidelines – Water Distribution (WDG001), July 2010, City of Ottawa, Clause 4.2.2 states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in Clause 4.2.2 of the guidelines are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	Maximum pressure at any point in the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

2.4.3 Fire Flow Rates

In the recent Technical Bulletin 'ISDTB-2014-02, Revisions to Ottawa Design Guidelines – Water', the fire flow requirements for single detached dwellings and traditional town and row houses can be capped at 10,000 l/min provided that there is a minimum separation of 10 meters between the backs of adjacent units and that the town and row house blocks are limited to 600 square meters of building areas and seven dwelling units.

It is expected that the majority of the residential units in Phase 17 will meet the requirements of the 10,000 l/min cap. In the case where units are orientated so the rear of the unit is less than 10 meters from the side of a unit which violates Item 4.1 of Technical Bulletin ISDTB-2014-02 then a 2 hour rated firewall is required on the side of the unit which is less than 10 meters from the back of the adjacent unit. Alternatively, if the unit which backs onto the side of an adjacent unit is separated by more than 3 meters from any adjacent units, then a FUS calculation can be performed for this unit and if the water distribution system can support the calculated fire flow, the 2 hour rated firewall will not be required.

During the detailed design of Phase 17, a fire flow rate of 15,000 l/min will be applied to the commercial, school and medium density blocks in absence of detailed plans.

2.5 Recommended Water Distribution Plan

A conceptual Water Plan is shown on **Figure 2.1** in Appendix B. The plan includes the trunk watermains identified in the 2017 ISSU Report and 2008 MSS. Local watermain sizing will be conducted during detailed design in accordance with the design criteria in Section 2.3 and the phasing shown on **Figure 1.5**.

Water servicing for Phase 1 will require extension of the 300 mm watermain at Borbridge and Spratt through the 4725 Spratt Road site to Phase 17. The 300 mm watermain on Spratt Road will be extended south with several connections to the Phase 1 watermains. Phase 2 servicing

includes the extension of the 400 mm watermain on Solarium which will be constructed to Spratt Road as part of the RSDC Phase 15-3 development which is currently in the approval process. South of Phase 17 a 300 mm watermain is planned per the ISSU. If Phase 3 is built before this watermain is built, then temporary connections will be required in Phase 3 to provide proper looping. The location of the proposed temporary connections is shown on **Figure 2.1**.

3 SANITARY SEWERS

3.1 Existing Conditions

As noted in Section 1.5, there are existing sanitary sewers in the RSDC Phase 15 and Phase 13 lands. A 525 mm sanitary sewer has been extended on Spratt Road to Borbridge. A 300 mm sanitary sewer has recently been built on Whooping Crane Ridge adjacent to Spratt which is tributary to the Spratt Road trunk sewer. A 525 mm sanitary sewer has been capped on Ralph Hennessy Avenue at the BRT corridor. The location of the existing sewers is shown on **Figure 1.3** in **Appendix A**.

3.2 Riverside South Community Infrastructure Servicing Study Update – Rideau River Area (2017 ISSU)

The report provided a macro level servicing plan for the portion of the Riverside South Community that will be tributary to Pond 5, which is referred to as the Rideau River Study Area. The limits of the study area are shown on Figure 1.1 from the study and a copy is included in **Appendix A**. The subject property is located within the Rideau River Drainage Area.

The 2017 ISSU Report recommended that wastewater flows from the study area is to be routed to either the River Road sewer or the Spratt Road sewer. For reference, a copy of Drawing SAN-1, Sanitary Drainage Plan from the 2017 study is included in **Appendix C**. The 2017 ISSU study recommended that drainage area 3b (which encompasses Phase 17) be tributary to the Ralph Hennessy trunk sewer while the 4725 Spratt Road site, part of area 2d, is tributary to the Spratt Road sewer. A copy of Figure 4.2, Recommended Sanitary Servicing (2017 Update), from the 2017 ISSU Report, together with a related design sheet are both included in **Appendix C**.

3.3 Deviation Report Memorandum Riverside South, Rideau River Drainage Area Sanitary Sewer Design Parameters, IBI Group – 2017 (Deviation Report)

This report, which was accepted by the City of Ottawa in 2017, provided alternative drainage areas for the River Road, Spratt Road and Shoreline Drive (Ralph Hennessy) collector sewers.

Therefore, it is proposed to increase the 2a sub-catchment area by about 41 ha and decrease the 2c and 2d areas by an equal amount. A Deviation Report Memorandum detailing these changes was completed by IBI Group July 25, 2017 and is included in **Appendix C**. Similarly, further analysis was conducted on the Spratt Road Collector and Shoreline Drive Collector sewers, the resulting design sheet and Figure A-3 has also been provided in **Appendix C**. This report proposed to expand the drainage area of the River Road collector sewer to better follow the storm sewer flow directions and reduce grade raise challenges associated with the ISSU Spratt Road collector drainage area. The shift of the River Road/Spratt Road drainage area split westward has resulted in additional lands west of Spratt Road being included in the Spratt Road collector drainage area. The deviation memo, supporting figures and sewer design sheets along with City of Ottawa approval emails can all be found in **Appendix C**. The deviation memo and supporting documents confirm that the small portion of the subject lands that was included in the ISSU drainage area 3b which were tributary to the Shoreline Drive collector sewer are now included in the expanded drainage areas 2Cii, 2Dii and 2Diii, as shown in the deviation report. As such, the west portion of the subject lands are tributary to the Spratt Road collector sewer while the east portion is tributary to the Shoreline Drive collector sewer, which is currently capped on Ralph Hennessy Drive.

3.4 Riverside South Phase 13, Stantec 2017 (Phase 13)

The report and design drawings confirm that a sanitary sewer stub was left on Ralph Hennessy Ave just prior to the BRT corridor on Phase 13 lands. This sewer has been sized to accommodate flows from the eastern portion of the subject lands. A copy of the drainage area plan from the Phase 13 report is included in **Appendix C**.

3.5 Design Criteria

The estimated wastewater flows from the subject site are based on the revised City of Ottawa design criteria. Among other items, these include:

- Average residential flow = 280 l/c/d
- Peak residential flow factor = (Harmon Formula) x 0.80
- Average commercial flow = 28,000 l/s/ha
- Average institutional flow = 28,000 l/s/ha
- Peak ICI flow factor = 1.5 if ICI area is ≤ 20% total area
  1.0 if ICI area is > 20% total area
- Inflow and Infiltration Rate = 0.33 l/s/ha
- Minimum Full Flow Velocity = 0.60 m/s
- Maximum Full Flow Velocity = 3.0 m/s
- Minimum Pipe Size = 200 mm diameter

In accordance with the City of Ottawa Sewer Design Guidelines table 4.2, the following density rates are estimated for the subject site:

- Single units = 3.4
- Semi units = 2.7
- Townhouse and back to back units = 2.7
- Apartment units = 1.8

3.6 Recommended Sanitary Plan

A conceptual sanitary plan is included in **Figure 3.1** in **Appendix C**. The plan builds on the information in the ISSU per Section 3.2 and the Deviation Report as explained in Section 3.3.

Servicing for Phase 1 will require the 525 mm sanitary sewer on Ralph Hennessy Avenue to be extended south to service the east portion of the site. A small portion of Phase 1 will be serviced by a sanitary sewer that will be extended through the 4725 Spratt Road site that is tributary to the Spratt Road sewer. The remainder of Phase 1 will be serviced by two connections to the 300 mm sanitary sewer on Whooping Crane Ridge across Spratt Road that is tributary to the Spratt Road sewer.

Phases 2 and 3 will be serviced through the extension of sewers from Phase 1. A portion of the western part of Phase 2 and 3 will be serviced by the extension of the sewer on Solarium in the RSDC Phase 15-3 site which is tributary to the Spratt Road sewer.

4 STORMWATER MANAGEMENT

4.1 Existing Conditions

The ultimate storm runoff outlet from the property is the Riverside South Pond 5 Stormwater Management Facility, located west of River Road. As noted in Section 1.5, there are existing storm sewers in the RSDC Phase 15 and Claridge Phase 2 lands which are tributary to Pond 5. A 2250 mm storm sewer is located at Borbridge and Spratt Road while a 1500 mm diameter storm sewer has been built on Whooping Crane Ridge adjacent to Spratt Road. Both of these sewers are tributary to the 3000 mm storm sewer on Atrium Ridge which is currently under construction. A 2400 mm storm sewer has currently been constructed on Solarium at the Andromeda/Hydrangea intersection. The location of existing sewers is shown on **Figure 1.3** in **Appendix A**.

There are no existing municipal drains, watercourses or recognized drainage features located on the subject lands.

Spratt Road is currently a rural cross-section adjacent to the property, which captures runoff in roadside ditches. Prior to proceeding with the development of the subject lands, it is acknowledged that Spratt Road will need to be reconstructed and urbanized, eliminating the roadside ditches.

4.2 Riverside South Community Infrastructure Servicing Study Update – Rideau River Area (2017 ISSU) Criteria

The report provided a macro level servicing plan for the Riverside South Community that will be tributary to future Pond 5. That area is referred to as the Rideau River Area and includes the subject property. The limits of the study are shown in Figure 1.1 from the study and a copy is included in **Appendix A**.

The 2017 ISSU report recommended that stormwater runoff from the study area be routed to Riverside South Pond 5, which is currently in operation. For reference a copy of Drawing STM1, Storm Sewers from the 2017 study is included in **Appendix D**.

In the ISSU, the majority of Phase 17 outlets to Node N5-9 at Borbridge and Spratt Road through trunk sewers along the eastern extension of Borbridge through the 4725 Spratt Road site and through a trunk storm sewer on Spratt Road. In the Phase 17 storm plan, which is explained in Section 4.4, the Spratt Road trunk sewer that is shown in the ISSU is replaced by a sewer at Whooping Crane Ridge adjacent to Spratt Road which connects to the trunk sewer at Node N5-16 at Brian Good and Atrium Ridge. A southwest portion of Phase 17 outlets to Node N5-32 per the ISSU.

4.3 Riverside South Phase 15 2-4 & Spratt, IBI Group 2017 (Phase 15)

This report contained the detailed design analysis of the storm trunk sewer within Borbridge Avenue. This sewer is the storm outlet for all of the Phase 17 lands. The drawing 103291-554 External Storm Drainage, included in **Appendix D**, shows that flows from the subject lands have been included in the analysis of the Borbridge Ave. trunk sewer.

4.4 Minor Storm Sewer Design Criteria

The minor system storm sewers for the subject site are proposed to be sized based on the rational method, applying standards of both the City of Ottawa and MECP. Some of the key criteria for this site include the following:

- Sewer Sizing: Rational Method

- Design Return Period: 1:2 year (local streets)
  1:5 year (collector streets)
  1:10 year (arterial roads)
- Initial Time of Concentration 10 minutes
- Manning's: 0.013
- Minimum Velocity: 0.80 m/s
- Maximum Velocity: 3.00 m/s

PIPE DIAMETER (MM)	SLOPE (%)
250	0.43
300	0.34
375	0.25
450	0.20
525	0.16
600	0.13
675	0.11
750 and larger	0.1

- Runoff Coefficients (per ISSU Update, to be confirmed at detailed design stage):

LAND USE		RUNOFF COEFFICIENT
Residential	Low Density	0.65
	Medium Density	0.70
	High Density	0.80
Commercial		0.75
Green Space		0.30
Institutional		0.75
Park		0.20
Transitway		0.82
Arterial Road		0.82
Collector Road		0.82

4.5 Recommended Minor Storm Plan

A conceptual minor storm plan is included in **Figure 4.1** in **Appendix C**. The plan builds on the information in the ISSU per Section 4.2.

Servicing for Phase 1 will require the extension of the storm sewer through the 4725 Spratt Road site from Borbridge at Spratt Road to service the east portion of the phase. The western portion of Phase 1 will be serviced by two connections to the 1500 mm storm sewer on Whooping Crane Ridge on the east side of Spratt Road. These sewers will also provide drainage for the planned urbanization of Spratt Road.

Phases 2 and 3 will be serviced through the extension of sewers from Phase 1. A portion of the western part of Phase 2 and 3 will be serviced by the extension of the trunk sewer on Solarium which will be extended to Spratt Road through the RSDC Phase 15-3 site.

4.6 Dual Drainage

Development of the subject site will include a stormwater strategy using the dual drainage system. The system features a combination of on-site detention (surface ponding) with inlet control devices (ICDs) and direct conveyance with no ponding. It accommodates both minor and major stormwater runoff. During frequent storms the effective runoff collected by catchment areas is directly released via catch basin inlets into the network of storm sewers, called the minor system. During less frequent storms, the balance of the flow (in excess of the minor flow) is accommodated by a system of rear yard swales and street segments (or other forms of underground storage or surface storage such as dry ponds). The main advantage of this arrangement is its ability to adjust the rate of total inflow into the minor system to satisfy the required level of service. The required total inflow is typically maintained by the restriction of the capacity and the density of the inlets directly connected into this system. As noted, during less frequent storms, the balance of the flow is accommodated by the major system. Typically, this accommodation is achieved by the attenuation on catchment surfaces called on-site detention and/or direct conveyance of the flow to a recipient.

5 EROSION AND SEDIMENTATION CONTROL PLAN

During construction, existing conveyance systems and water courses can be exposed to sediment loading. Development of a subdivision such as this project can potentially create deleterious material which can enter the natural environment and gain access to fish and amphibian habitat. In order to prevent site generated sediments from entering the environment, an Erosion and Sedimentation Control Plan (ESCP) will be implemented prior to development. Although a generic ESCP can be developed as part of this report and subsequent Design Briefs, the final plan will be developed and implemented by the Owner's general contractor.

The erosion and sedimentation control strategy for the subject site could include erection of silt fences, straw bale barriers and rock check dams. These measures will ensure protection of both adjacent developments and the natural environment adjacent to and downstream of the site.

A copy of a potential Erosion and Sedimentation Control Plan (ESCP) is shown on **Figure 5.1**, which is included in **Appendix E**.

Other elements of an ESCP could also include installation of bulkhead barriers at the nearest existing downstream manholes to ensure deleterious material does not gain access to those sewers and potentially the Riverside South Pump Station and/or Pond 5. Also, the final ESCP will incorporate features to deal with disposal of any taken water. Some of the features or general requirements are sometimes conditions of a Permit-To-Take-Water.

6 APPROVALS AND PERMIT REQUIREMENTS

6.1 City of Ottawa

The City of Ottawa will review all development documents including final working drawings and related reports. Upon completion, the City will approve the local watermains, under Permit No. 008-202; submit the sewer extension MECP application to the province and eventually issue a Commence Work Notification.

6.2 Province of Ontario

The Ministry of Environment, Conservation and Parks (MECP) will approve the local sewers under Section 53 of the Ontario Water Resources Act and issue an Environmental Compliance Approval. A Permit To Take Water may also need to be issued by the MECP.

6.3 Conservation Authority

At this time it is understood that there are no required permits, authorizations or approvals needed expressly for this development from the Conservation Authority; however, this will be confirmed through a subsequent pre-consultation with the RVCA.

6.4 Federal Government

There are no required permits, authorizations or approvals needed expressly for this development from the federal government.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusion

While some infrastructure which is needed to help service the subject site already exists, the development plan will include expansion and extension of those infrastructure to adequately service the site with water supply, wastewater collection and disposal and management of stormwater runoff. The extension of the existing watermains through the subject site will provide a reliable source of both drinking water and fire flows. The ultimate wastewater outlets are already in place. A new stormwater management facility, Pond 5, is operational and will provide the necessary treatment for runoff from the subject site. Development of the subject property will include the recommended storm sewer plan. Therefore, including both existing and proposed extension of major infrastructure there will be suitable public services put in place to service the subject site.

7.2 Recommendation

From an assessment of major municipal infrastructure perspective, it is recommended that the development application for the subject property known as Phase 17 be accepted and that the development of the property move forward.

Lance Erion, P. Eng.
Associate

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APPENDIX A

Development Servicing Study Checklist

The following table is a customized copy of the current City of Ottawa's Development Servicing Study Checklist. It is meant to be a quick reference for location of each of the items included on the list. The list contains the various item description and the study section in which the topic is contained.

GENERAL CONTENT

	ITEM DESCRIPTION	LOCATION
	Executive Summary (for larger reports only)	N/A
√	Date and revision number of the report	Front Cover
√	Location Map and plan showing municipal address, boundary, and layout of proposed development.	Figure 1.1
√	Plan showing the site and location of all existing services.	Figure 1.3
√	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Section 2.2, 3.2, 3.3, 4.3 Figure 1.1
√	Summary of Pre-consultation Meeting with City and other approval agencies.	Section 1.6
√	Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.	Sections 1.3, 2.2, 3.2
√	Statement of objectives and servicing criteria	Section 1.1, 2.2.3, 3.3 & 4.3
√	Identification of existing and proposed infrastructure available in the immediate area.	Figure 1.3
√	Identification of Environmentally Significant Areas, Watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	Sections 1.9
√	Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Section 1.8 Detail Design
√	Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
	Proposed phasing of the development, if applicable.	N/A
√	Reference to geotechnical studies and recommendations concerning servicing.	Section 1.8

√	All preliminary and formal site plan submissions should have the following information: • Metric scale • North arrow (including construction North) • Key plan • Name and contact information of applicant and property owner • Property limits including bearings and dimensions • Existing and proposed structures and parking areas • Easements, road widening and rights-of-way • Adjacent street names	Noted

DEVELOPMENT SERVICING REPORT: WATER

	ITEM DESCRIPTION	LOCATION
√	Confirm consistency with Master Servicing Study, if available	Section 2.2
√	Availability of public infrastructure to service proposed development	Section 2.1
√	Identification of system constraints – external water needed	Sections 2.2
√	Identify boundary conditions	N/A
√	Confirmation of adequate domestic supply and pressure	Section 2.3 & Appendix B
√	Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Section 2.2
√	Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	Section 2.2 Appendix B
	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defining phases of the project including the ultimate design.	Section 2.4
	Address reliability requirements such as appropriate location of shut-off valves.	Detail Design
√	Check on the necessity of a pressure zone boundary modification.	N/A
√	Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range.	Section 2.2
√	Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Detail Design
√	Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities and timing of implementation.	N/A
√	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 2.3
√	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	Detailed Design

DEVELOPMENT SERVICING REPORT: WASTEWATER

	ITEM DESCRIPTION	LOCATION
√	Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	Section 3.3
√	Confirm consistency with Master Servicing Study and/or justifications for deviations.	Section 3.2
√	Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age condition of sewers.	Detail Design
√	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 3.2, Appendix C
√	Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Section 3.1, 3.2, 3.4
	Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix "C") format.	Section 3.3 & Detail Design
√	Description of proposed sewer network including sewers, pumping stations and forcemains.	Section 3.1, 3.4 & Figure 3.1 in Appendix C
√	Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	Section 1.9
√	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	Section 3.1
√	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
√	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
√	Special considerations such as contamination, corrosive environment etc.	Detail Design

DEVELOPMENT SERVICING REPORT: STORMWATER CHECKLIST

	ITEM DESCRIPTION	LOCATION
√	Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 4.1, 4.4 Appendix D
√	Analysis of available capacity in existing public infrastructure.	Section 4.1, 4.4,
√	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Section 1.7, Figure 1.4 in Appendix A

√	Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Section 4.5
√	Water quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 4.5
√	Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Section 4.3, 4.4, 4.5
√	Set-back from private sewage disposal systems.	N/A
√	Watercourse and hazard lands setbacks.	Section 1.9, 4.8
√	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	Section 1.6
√	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	Section 4.2
√	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	Section 4.5 Detail Design
√	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	Section 1.9, 4.8
	Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Detail Design
√	Any proposed diversion of drainage catchment areas from one outlet to another.	Section 1.7, 4.4
√	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Section 4.2, 4.4, Appendix D
	If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	N/A
√	Identification of potential impacts to receiving watercourses	N/A
√	Identification of municipal drains and related approval requirements.	Section 1.9
√	Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 4.5 Detail Design
√ √	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Section 4.5 Detail Design
	Inclusion of hydraulic analysis including hydraulic grade line elevations.	Section 4.6
√	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 5
√	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
√	Identification of fill constraints related to floodplain and geotechnical investigation.	Section 1.8,

APPROVAL AND PERMIT REQUIREMENTS: CHECKLIST

	ITEM DESCRIPTION	LOCATION
√	Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	Section 1.6, 1.9
	Application for Certification of Approval (CofA) under the Ontario Water resources Act.	Section 1.6 Detail Design
√	Changes to Municipal Drains	N/A
√	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	Section 6

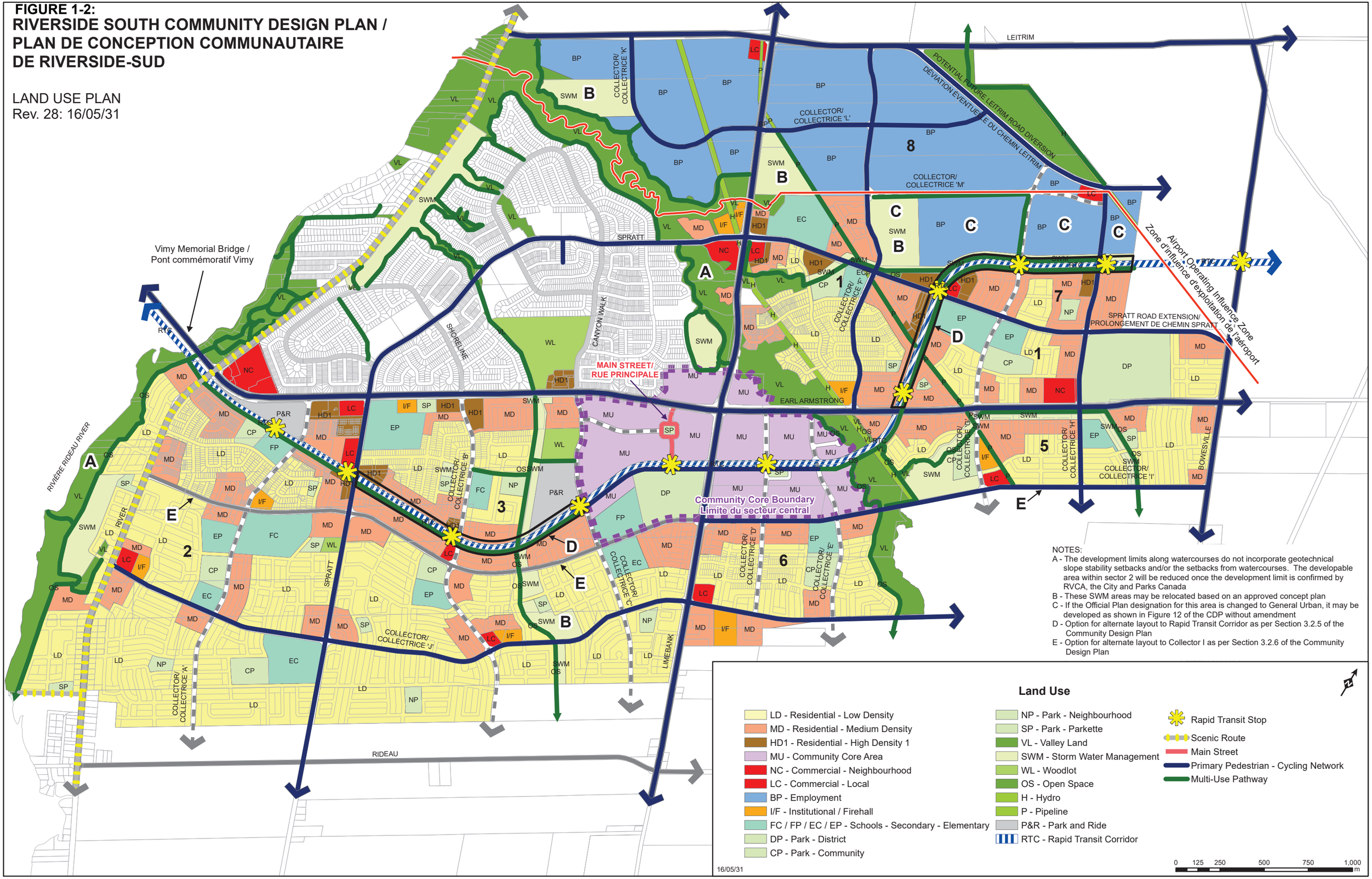
CONCLUSION CHECKLIST

	ITEM DESCRIPTION	LOCATION
√	Clearly stated conclusions and recommendations	Section 7.1 & 7.2
	Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	Detail Design
√	All draft and final reports shall be signed and stamped by professional Engineer registered in Ontario.	Completed

FIGURE 1-2:

RIVERSIDE SOUTH COMMUNITY DESIGN PLAN / PLAN DE CONCEPTION COMMUNAUTAIRE DE RIVERSIDE-SUD

LAND USE PLAN
Rev. 28: 16/05/31



NOTES:
A - The development limits along watercourses do not incorporate geotechnical slope stability setbacks and/or the setbacks from watercourses. The developable area within sector 2 will be reduced once the development limit is confirmed by RVCA, the City and Parks Canada
B - These SWM areas may be relocated based on an approved concept plan
C - If the Official Plan designation for this area is changed to General Urban, it may be developed as shown in Figure 12 of the CDP without amendment
D - Option for alternate layout to Rapid Transit Corridor as per Section 3.2.5 of the Community Design Plan
E - Option for alternate layout to Collector I as per Section 3.2.6 of the Community Design Plan

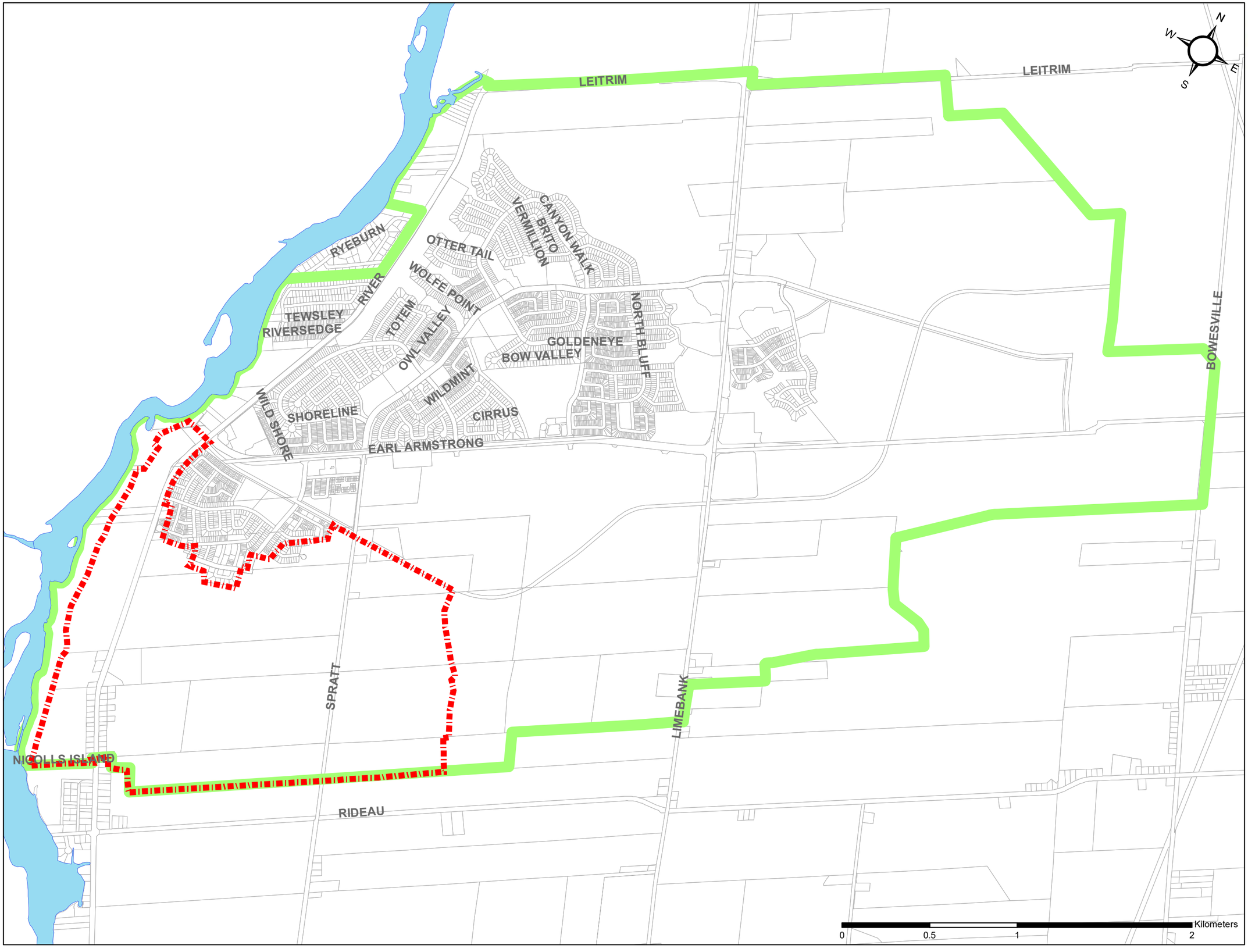
Land Use

- LD - Residential - Low Density
- MD - Residential - Medium Density
- HD1 - Residential - High Density 1
- MU - Community Core Area
- NC - Commercial - Neighbourhood
- LC - Commercial - Local
- BP - Employment
- I/F - Institutional / Firehall
- FC / FP / EC / EP - Schools - Secondary - Elementary
- DP - Park - District
- CP - Park - Community
- NP - Park - Neighbourhood
- SP - Park - Parkette
- VL - Valley Land
- SWM - Storm Water Management
- WL - Woodlot
- OS - Open Space
- H - Hydro
- P - Pipeline
- P&R - Park and Ride
- RTC - Rapid Transit Corridor
- Rapid Transit Stop
- Scenic Route
- Main Street
- Primary Pedestrian - Cycling Network
- Multi-Use Pathway

16/05/31

0 125 250 500 750 1,000 m

I:\AA_Staff\Sarah\DonMorse\RiversideSouthCDP_Update_2015\RiversideSouthCDP_LandUse2015_enRev28.mxd



Stantec

STANTEC CONSULTING LTD.
400 1331 CLYDE AVENUE
OTTAWA, ON
TEL. 613.722.4420
WWW.STANTEC.COM

Legend

- Rideau River Study Area
- Riverside South Community Boundary

Client / Project:

CITY OF OTTAWA

RIVERSIDE SOUTH ISSU UPDATE

OTTAWA, ON

Title:

RIVERSIDE SOUTH COMMUNITY AND STUDY AREA BOUNDARY

Project No.:

163401101

Figure No.:

1-1

Revision 28 of the Riverside South Community Design Plan (CDP) (Bousfields, May 2016) was approved by the City of Ottawa Council in June 2016. The current Riverside South Community Infrastructure Servicing Study Update (Stantec, June 2017) is completed to reflect the CDP and Master Drainage Plan (MDP). The CDP Land Use Plan is shown in **Figure 1-2.**

1.3 PREVIOUS RELEVANT STUDIES

The following, previously completed, studies and design briefs were considered in the completed analyses.

1.3.1 Master Drainage Studies

"South Urban Community Drainage Planning Study" (UMA Engineering Ltd. and Golder Associates, May 1990)

"City of Gloucester South Urban Community Master Drainage Plan" (Gore & Storrie, July 1992)

"Riverside South Community Master Drainage Plan Update – Final Report" (Stantec Consulting Ltd., September 2008)

"Riverside South Community Master Drainage Plan Update – Rideau River Study Area – Final Report" (Stantec Consulting LTD., March 2016)

1.3.2 Master Servicing Studies

"Riverside South Master Servicing Study" (Stantec Consulting Ltd., September 2008)

"South Urban Community River Ridge Master Infrastructure Plan" (Ainley Graham and Associates, December 1994)

Pressure Zones Infrastructure Assessment" (Stantec Consulting, 2002)

"Water Master Plan" (Stantec Consulting, 2013)

1.3.3 Sanitary Studies

"South Urban Community Master Water and Sanitary Sewage Study" (Gore & Storrie, 1992)

"South Urban Community Rideau River Crossing – Facilities Phase" (Gore & Storrie, 1995)

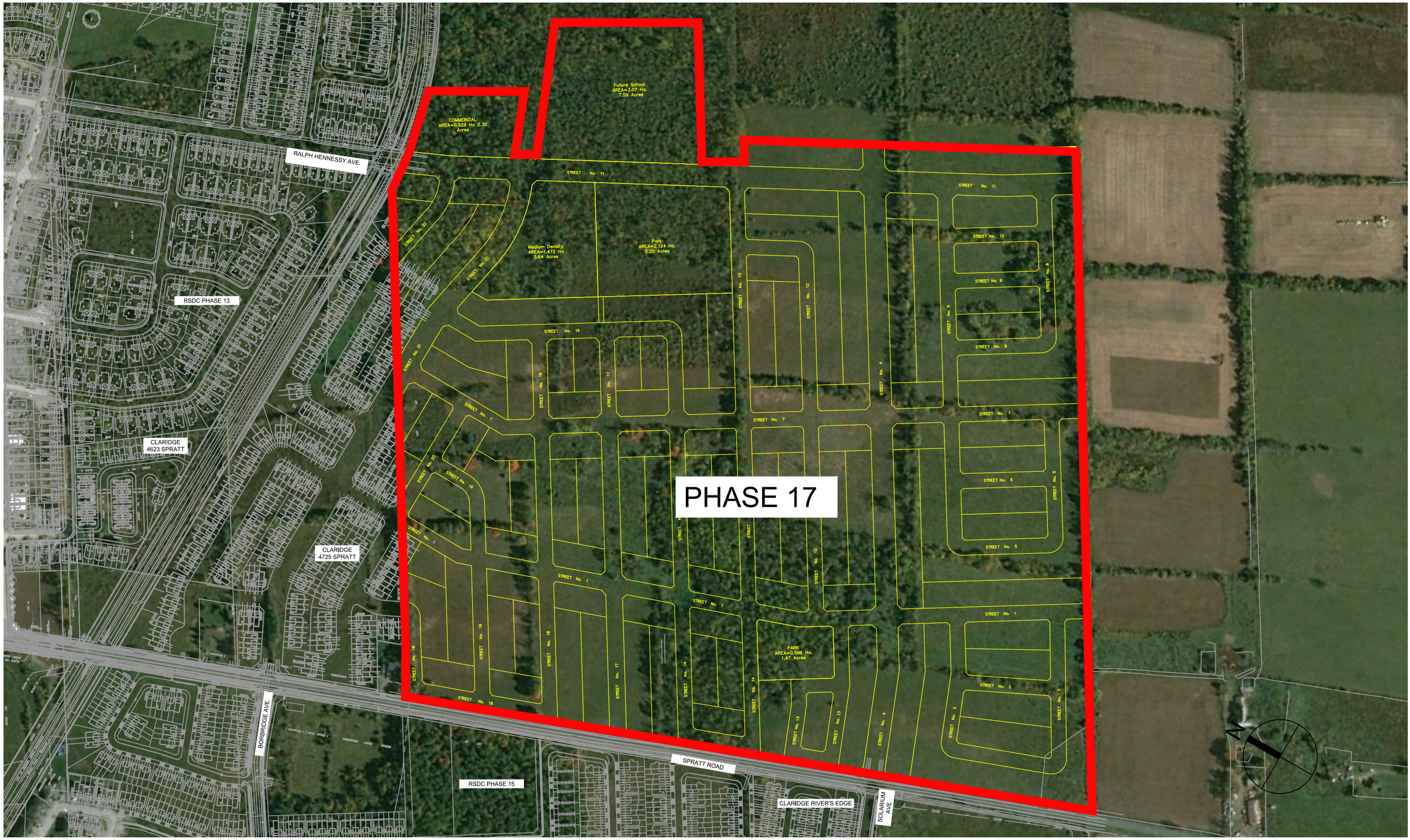
"Wastewater Master Plan" (RMOC, July 1997)

"Wastewater IMP" (Stantec, 2013)

1.3.4 Design Briefs/Reports

"Design Report - Riverside South Development Corporation - Riverside South Community Phase 9" (J.L. Richards & Associates Limited, December 2011)

"Riverside South Elevated Water Storage Rank Class Environmental Assessment" (Stantec, 2014)



J:\125581_RSDCPhase17\7.0_Production\7.03_Design\04_Civil_LAND\Assessment Report\125581-FIG-1.1-Location Plan.dwg Layout Name: LOCATION PLAN Last Saved By: chris.cormier Last Saved At: Jul. 17, 20

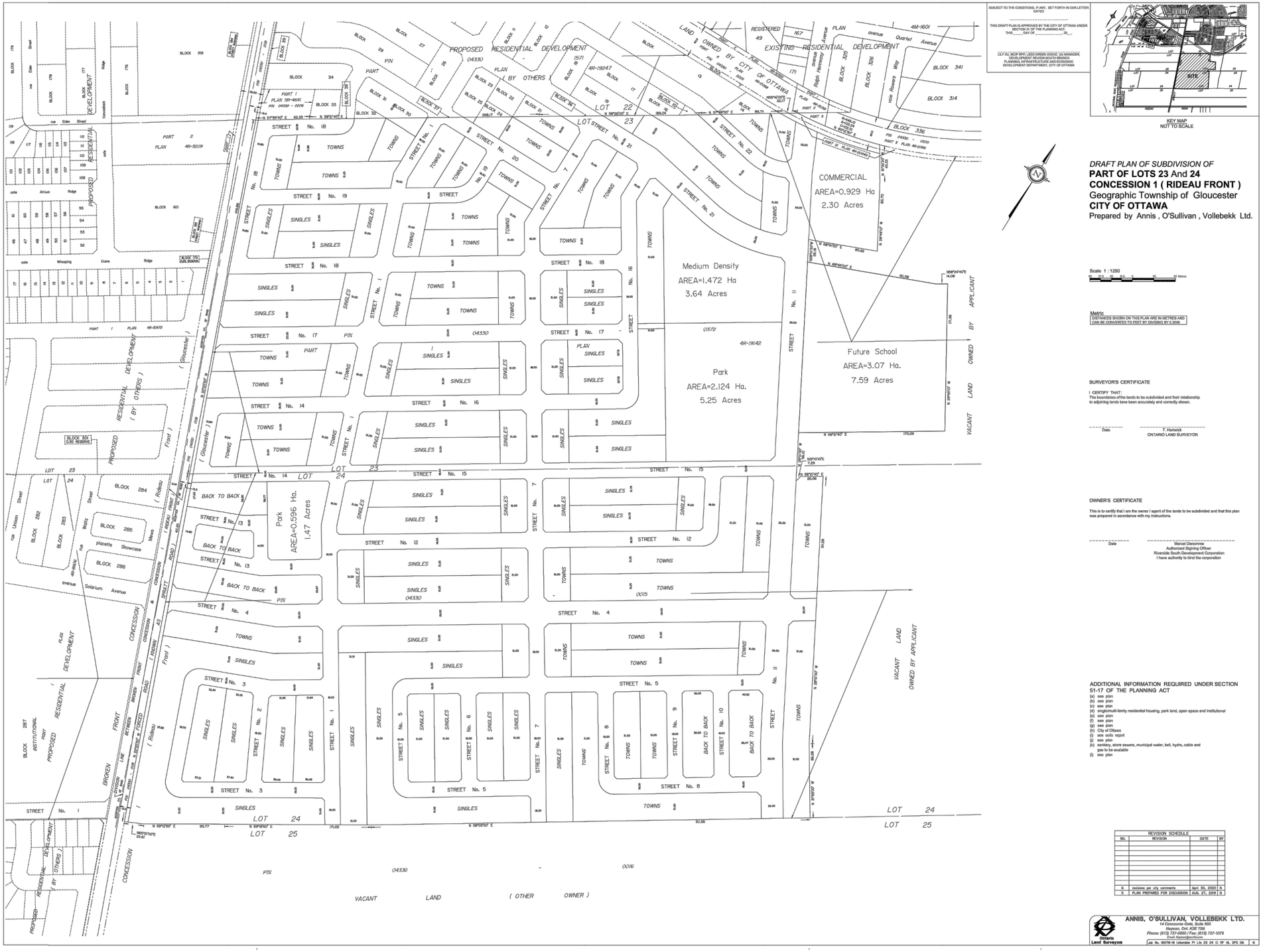
IBI

Scale
N.T.S.

Project Title
ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES
RSDC PHASE 17 LANDS
RIVERSIDE SOUTH COMMUNITY
RIDEAU RIVER AREA

Drawing Title
LOCATION PLAN

Sheet No.
FIGURE 1.1



DRAFT PLAN OF SUBDIVISION OF
PART OF LOTS 23 And 24
CONCESSION 1 (RIDEAU FRONT)
Geographic Township of Gloucester
CITY OF OTTAWA
Prepared by Annis , O'Sullivan , Vollebekk Ltd.

Scale 1 : 1250

Metric
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

SURVEYOR'S CERTIFICATE
I CERTIFY THAT:
The boundaries of the lands to be subdivided and their relationship to adjoining lands have been accurately and correctly shown.

Date — T. Herbekk, ONTARIO LAND SURVEYOR

OWNER'S CERTIFICATE
This is to certify that I am the owner / agent of the lands to be subdivided and that this plan was prepared in accordance with my instructions.

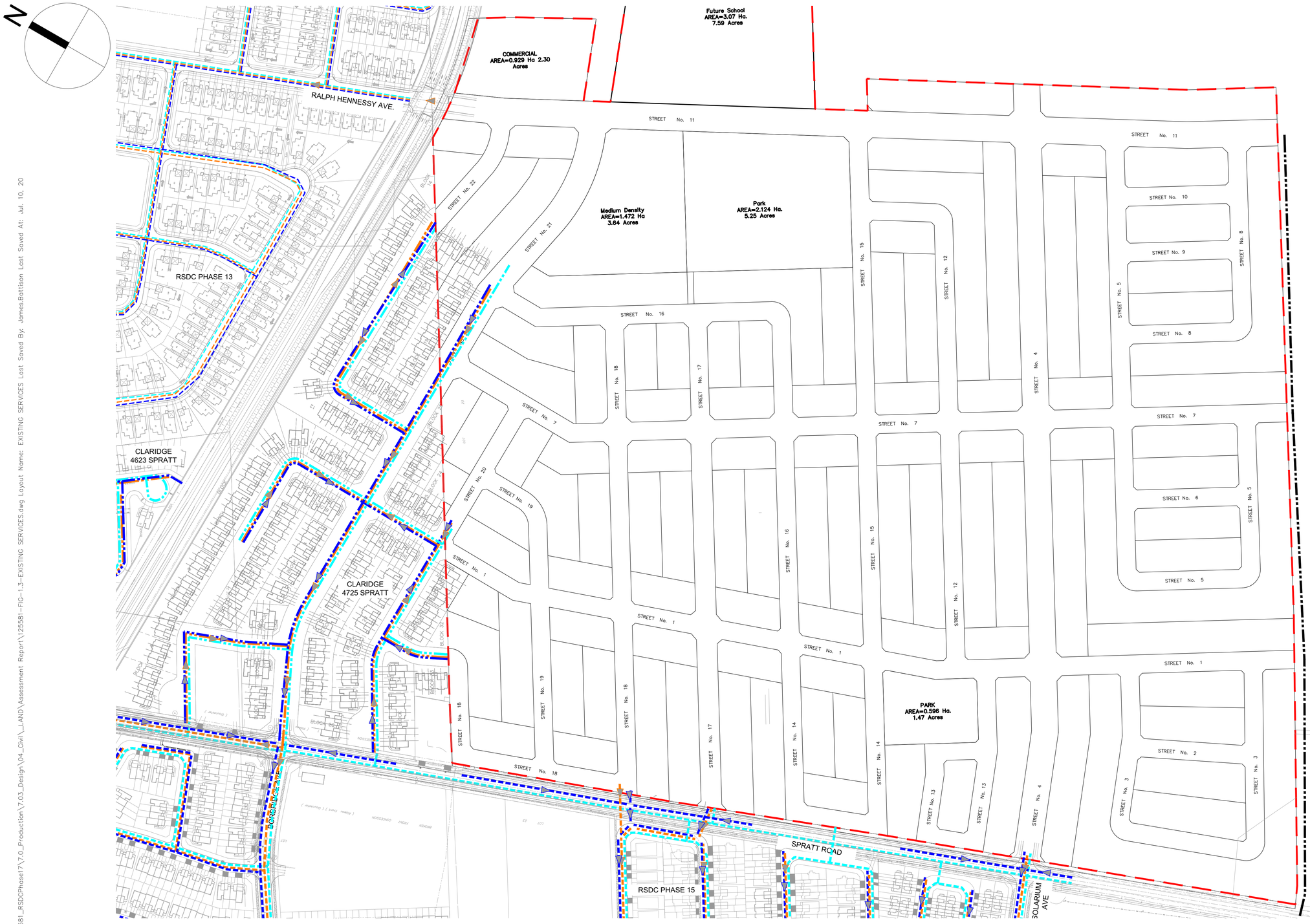
Date — Marcel Dandenne, Authorized Signing Officer, Riverside South Development Corporation
I have authority to bind the corporation

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51-17 OF THE PLANNING ACT
(a) see plan
(b) see plan
(c) see plan
(d) single/multi-family residential housing, park land, open space and institutional
(e) see plan
(f) see plan
(g) see plan
(h) City of Ottawa
(i) see soils report
(j) see plan
(k) sanitary, storm sewers, municipal water, bell, hydro, cable and gas to be available
(l) see plan

REVISION SCHEDULE			
NO.	REVISION	DATE	BY
6	revisions per city comments	April 30, 2020	N
5	PLAN PREPARED FOR DISCUSSION	AUG. 27, 2019	N

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com
Ontario Land Surveyors
Job No. 18078-18 Utsandex Pt Lts 23 24 Cl RF GL DPS D6

Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES RSDC PHASE 17 LANDS RIVERSIDE SOUTH COMMUNITY RIDEAU RIVER AREA	DRAFT PLAN	FIGURE 1.2



LEGEND:

- PROPOSED WATERMAIN - SEPARATE APPLICATION(s)
- EXISTING WATERMAIN
- PROPOSED STORM - SEPARATE APPLICATION(s)
- EXISTING STORM
- PROPOSED SANITARY - SEPARATE APPLICATION (s)
- EXISTING SANITARY

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Scale	Project Title	Drawing Title	Sheet No.
NTS	ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES RSDC PHASE 17 LANDS RIVERSIDE SOUTH COMMUNITY RIDEAU RIVER AREA	LOCATION OF EXISTING MAJOR MUNICIPAL INFRASTRUCTURE	FIGURE 1.3

Scale

NTS

Project Title

ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES
RSDC PHASE 17 LANDS
RIVERSIDE SOUTH COMMUNITY
RIDEAU RIVER AREA

Drawing Title

SITE TOPOGRAPHY

Sheet No.

FIGURE 1.4

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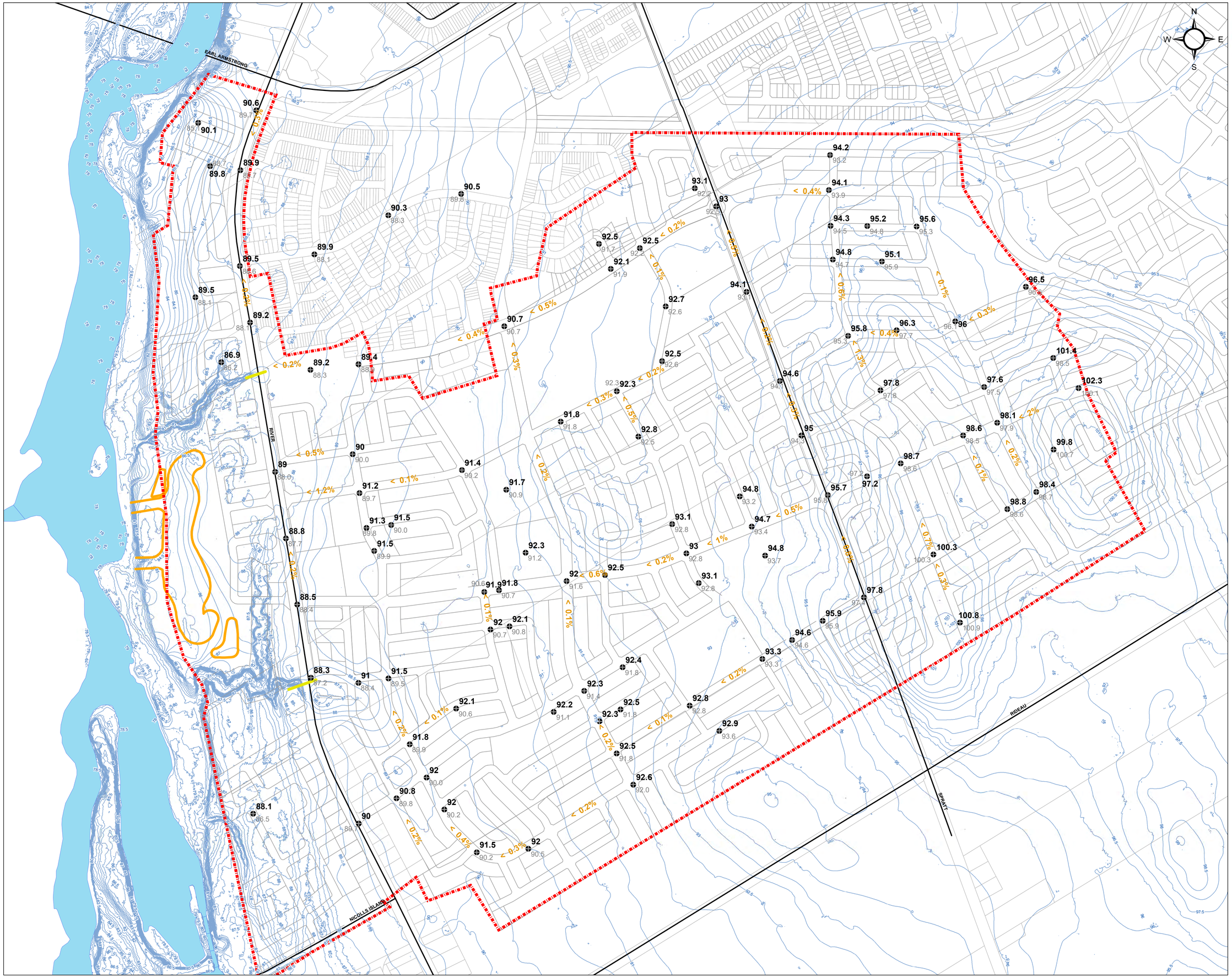
Scale	Project Title	Drawing Title	Sheet No.
NTS	ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES RSDC PHASE 17 LANDS RIVERSIDE SOUTH COMMUNITY RIDEAU RIVER AREA	PHASING PLAN	FIGURE 1.5



Stantec

STANTEC CONSULTING LTD.
400 1331 CLYDE AVENUE
OTTAWA, ON
TEL. 613.722.4420
WWW.STANTEC.COM

Legend

- Major Water
- Parcels
- Rideau River Study Area
- Pond 5
- Streets
- Proposed Elevation (m)
- Existing Elevation (m)
- Existing Contours (m)
- < Slope% — Proposed Slope
- Culverts

Client / Project:

CITY OF OTTAWA

RIVERSIDE SOUTH ISSU UPDATE

OTTAWA, ON

Title:

MACRO-GRADING PLAN

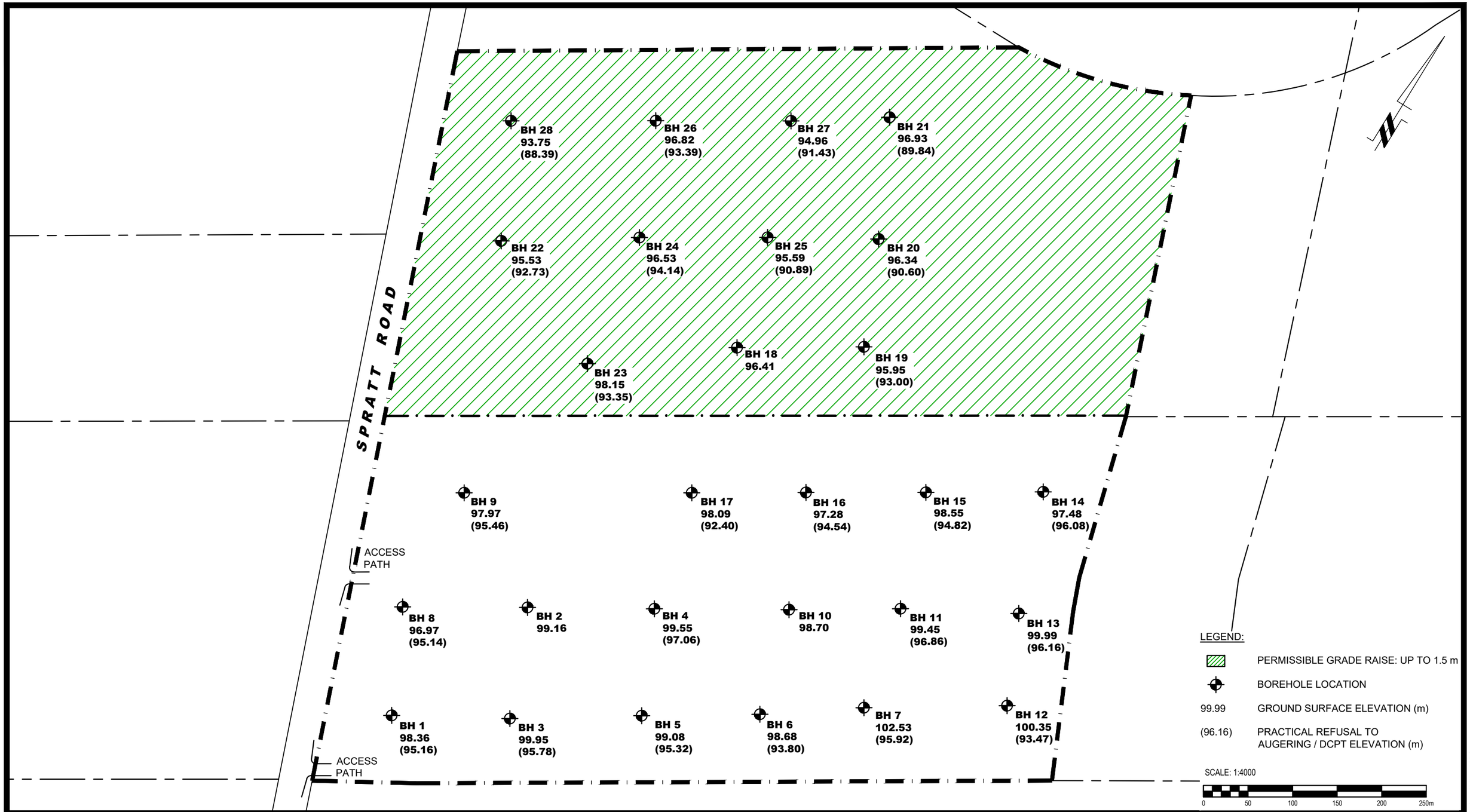
Project No.: **163401101**

Scale: 0 50 100 200 Meters

Drawing No.: **GCP-1**

Sheet: **1 of 7**

Revision: **0**



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

RIVERSIDE SOUTH DEVELOPMENTS

GEOTECHNICAL INVESTIGATION
PHASE 17-RIVERSIDE SOUTH RESIDENTIAL DEVELOPMENT-SPRATT ROAD
OTTAWA, ONTARIO

Title:

PERMISSIBLE GRADE RAISE PLAN

Scale: 1:4000	Date: 04/2020
Drawn by: YA	Report No.: PG5131-1
Checked by: KP	Dwg. No.: PG5131-2
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg51xx\pg5131\pg5131-2-permissible grade raise plan.dwg

From: Tse, Wendy <Wendy.Tse@ottawa.ca>
Sent: January 31, 2020 11:39 AM
To: Marcel Denomme <mdenomme@urbandale.com>; Christa Jones <cjones@urbandale.com>
Cc: Sevigny, John <John.Sevigny@ottawa.ca>; Giampa, Mike <Mike.Giampa@ottawa.ca>; Hayley, Matthew <Matthew.Hayley@ottawa.ca>; Richardson, Mark <Mark.Richardson@ottawa.ca>; Rathwell, Graham <graham.rathwell@ottawa.ca>; Walker, Burl <Burl.Walker@ottawa.ca>; Jamie Batchelor <jamie.batchelor@rvca.ca>; Ezzio, Sarah <sarah.ezzio@ottawa.ca>; Walker, Max <max.walker@ottawa.ca>; Richardson, Mark <Mark.Richardson@ottawa.ca>; Moise, Christopher <christopher.moise@ottawa.ca>
Subject: FW: RSDC, Ph 17, pre-application consultation meeting follow-up

Good morning Marcel, Christa,

Thank you for meeting staff on January 15 to discuss Ph 17 in Riverside South.

Although the unit count was not provided, it is our understanding that the development will generally consist of single detached and townhome (street and back to backs) dwellings, a medium density block, a local commercial block, one school block and two park parcels.

The applications required are the following:

- zoning by-law amendment: $20,216.99+$380 Conservation Authority
- Plan of Subdivision: please refer to application form, fee dependent on the number of units, also include the $35,376.11 fee for non-residential use

A 10% reduction in the fees is applicable if both applications are submitted together

The following is a summary of comments:

Policy

- Ensure that the subdivision meets the land use plan set out in the RSS secondary Plan, i.e., the medium densities, park, local commercial and institutional uses must be clearly identified in the proposed plan.
- The following minimum densities in units per net hectare are required for each neighbourhood designation category and future development applications must demonstrate how the minimum requirement has been met:
    - Low Density: 25 units;
    - Medium Density: 38 units;
- Collector “J” & “I” needs to be extended east, as per the RSS Secondary Plan.
- Provide a fully-connected grid street pattern with shorter block lengths than in the rest of the community, in the range of 150-200 metres.
- The local and collector street system will be a fully connected grid and will incorporate traffic calming design elements upon initial construction, as per the City’s Street Planning Manual.
- Streets will be located such that blocks will generally be no larger than about one hectare, or slightly more where local topographical or natural conditions make slightly larger blocks necessary.
- Subdivisions will be connected to each other seamlessly through an integrated street and block pattern that does not create enclaves or dead-ends, and avoids subdivisions or subdivision phases backing onto each other.
    - Ensure that Street 1, east of Spratt Rd is extended and connected to Ph17.

- Collector Street and Local must be 26 and 18 metres in width respectively, the 16.5m cross section is not to be used except for in a single loaded situation
- Staff doesn't have a concern with the proposed realignment of Collector "B" insofar as the medium densities, local commercial and institution use are provided at the intersection with Collector "J". In the event that the development proponent isn't providing these land uses, as set out in the Secondary Plan, an OPA would be required.

Urban Design

- Can pedestrian connectivity be improved?
- Can vehicular connectivity be increased to future neighbouring blocks?
- Is the proposal meeting density targets?
- Does the design meet the direction of the CDP?
- Street orientation; Consider whether east/west or north/south gives the best solar orientation.
- Single loaded streets with houses fronting them;
- Consider the nature of collector roads;
- Front houses to important streets; Is it best to front, back or side houses onto them?
- Prevent sound walls where possible;

Parks

Please see attachments

Infrastructure

Assessment on Adequacy of Public Services or Design Brief:

- Prior to submitting the servicing report the consultant should contact John Sevigny, John.Sevigny@ottawa.ca, 613-580-2424, ext 14388 and request boundary conditions for the watermain design. The consultant will need to provide the type of development, fire flow required (including the FUS calculations), average day demand, maximum day demand and maximum hour demand as well as a location plan showing the points of connection to the public system.
- It was noted in the meeting that IBI should confirm the drainage areas reflected in their latest design in Phase 15-3 matches what RSDC is proposing for this subdivision.

Geotechnical Study:

- Containing detailed information on geotechnical matters and recommendations (i.e. pavement, foundation, bedding construction etc.).
- Sensitive Marine Clay (SMC) is widely found across Ontario – geotechnical reports should include Atterberg Limits, consolidation testing, sensitivity values, and vane shear test results (at a minimum) with a discussion for proposals in areas containing SMC; If SMC exists than the tree planting restrictions are to be discussed and follow the City's most current tree planting guidelines.

Hydrogeological Assessment:

- Addressing the impacts to existing well in the vicinity of the development.

- This report shall include at a minimum the following items:
    - Basic hydrogeology for the area
    - Risk to existing wells during construction and from the long-term development of the site (e.g. quantity/quality, recharge, water budget, blasting)
    - Monitoring program for existing wells.

Natural Heritage/Forestry

- An EIS/TCR is required to address the existing forest cover and potential for species at risk. If they have an EIS from an earlier application we will be looking for it to be up-dated with the current species list. They will need to address the significant woodland policies, which will likely be that they do not apply due to the EMP/CDP, however that will need to be confirmed.
- Permit needed
- TCR required that could be combined with the EIS

Transportation

- Official Plan update to recommend local roads to be designed to 30km/hr

Conservation Authority

- EIS to identify any watercourses, if found, a Headwater Study required

Planning

- Consider traffic calming in the proximity of the school site
- North west corner of commercial block to incorporate parcel from abutting property
- Improve pedestrian connectivity
- Increase vehicular connectivity to future neighbouring blocks

The following are the plans and reports required to support the applications:

Planning Rationale, including Integrated Environmental Review
Draft plan of subdivision
Survey plan (2 copies)
Archaeological Resource Assessment (potential archeological pockets are found on the site)
Phase 1 ESA, Phase 2 if required by Phase 1
Environmental Impact Statement, with tree conservation report
Assessment of Adequacy of Public Services or Design Brief
Geotechnical Study
Hydrogeological Assessment
Noise Study, including from the airport and future BRT
Preliminary landscaping plan
Pedestrian plan
TIA, please have your consultant correspond with Mike Giampa with respect to requirements for submission

Note:

- All reports should follow the City's Guides for Preparing Studies and plans – these guides can be found at standard for https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#standards-policies-and-guidelines

Three paper copies, unless otherwise noted, and the pdf versions are required. To assist in our posting of the documents, please also complete the attached files checklist.

Please let me know if there are any questions.

Thank you.
Wendy

Wendy Tse, MCIP, RPP, LEED GA
Planner / Urbaniste
Development Review /Examen des demandes d'aménagement

Planning, Infrastructure and Economic Development Department/
Services de la planification, de l'infrastructure et du développement économique

City of Ottawa/ Ville d'Ottawa
110, avenue Laurier Avenue West / Ouest, 4th Floor / 4ième étage
Ottawa, ON K1P 1J1

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E-mail / Courriel : wendy.tse@ottawa.ca
Mail Code: 01-14

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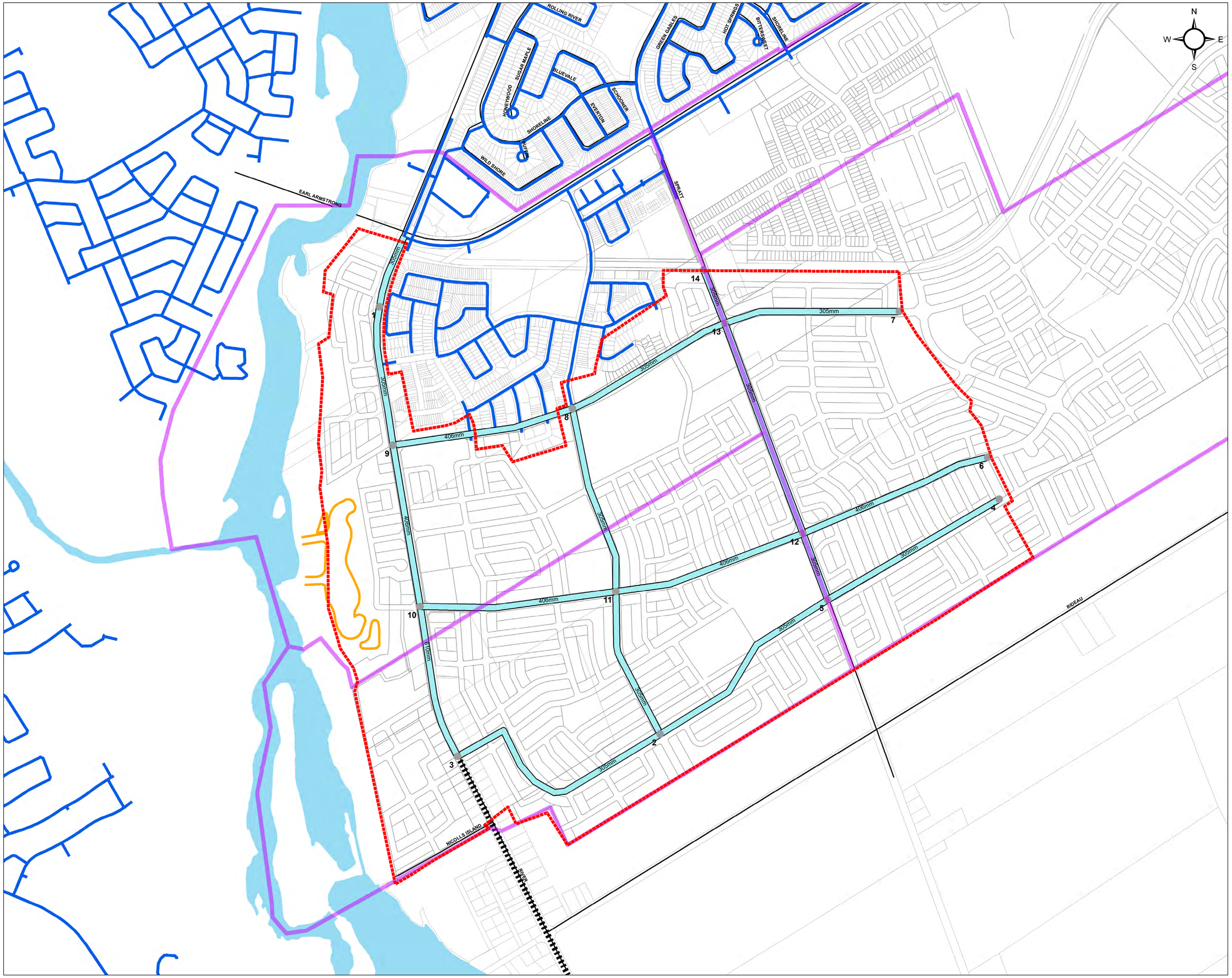
APPENDIX B



Stantec

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OTTAWA, ON
TEL. 613.722.4420
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Legend

- Major Water
- Parcels
- Growth Polygons
- Rideau River Study Area
- Pond 5
- Streets
- Watermain Node
- Proposed Watermain
- Future Watermain to Manotick
- Existing Watermains

Client / Project:

CITY OF OTTAWA

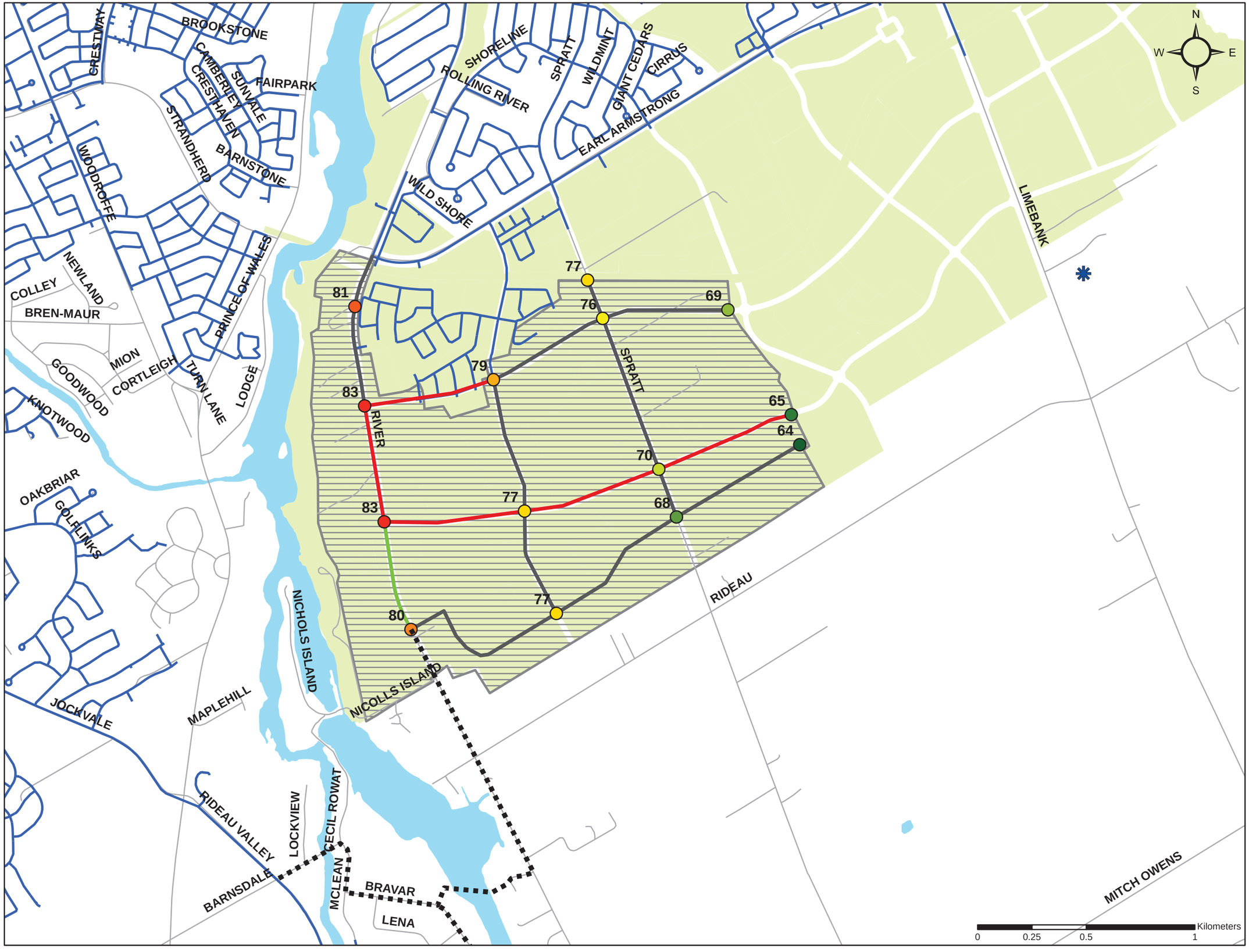
RIVERSIDE SOUTH ISSU UPDATE

OTTAWA, ON

Title:

POTABLE WATER SERVICING PLAN

Project No.:	Scale:	
163401101	0 125 250 Meters	
Drawing No.:	Sheet:	Revision:
WAT-1	**7 of 7**	**0**



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Legend

- Rideau River Study Area
- Riveside South Area
- Future Elevated Tank Location
- Future Pipes to Manotick
- Existing Watermains

Proposed Pipes

Dia. (mm)

- 305
- 406
- 610

Model Nodes Maximum Pressure (psi)

- 64
- 65
- 68
- 69
- 70
- 76
- 77
- 79
- 80
- 81
- 83

Client / Project:

CITY OF OTTAWA

RIVERSIDE SOUTH ISSU UPDATE

OTTAWA, ON

Title:

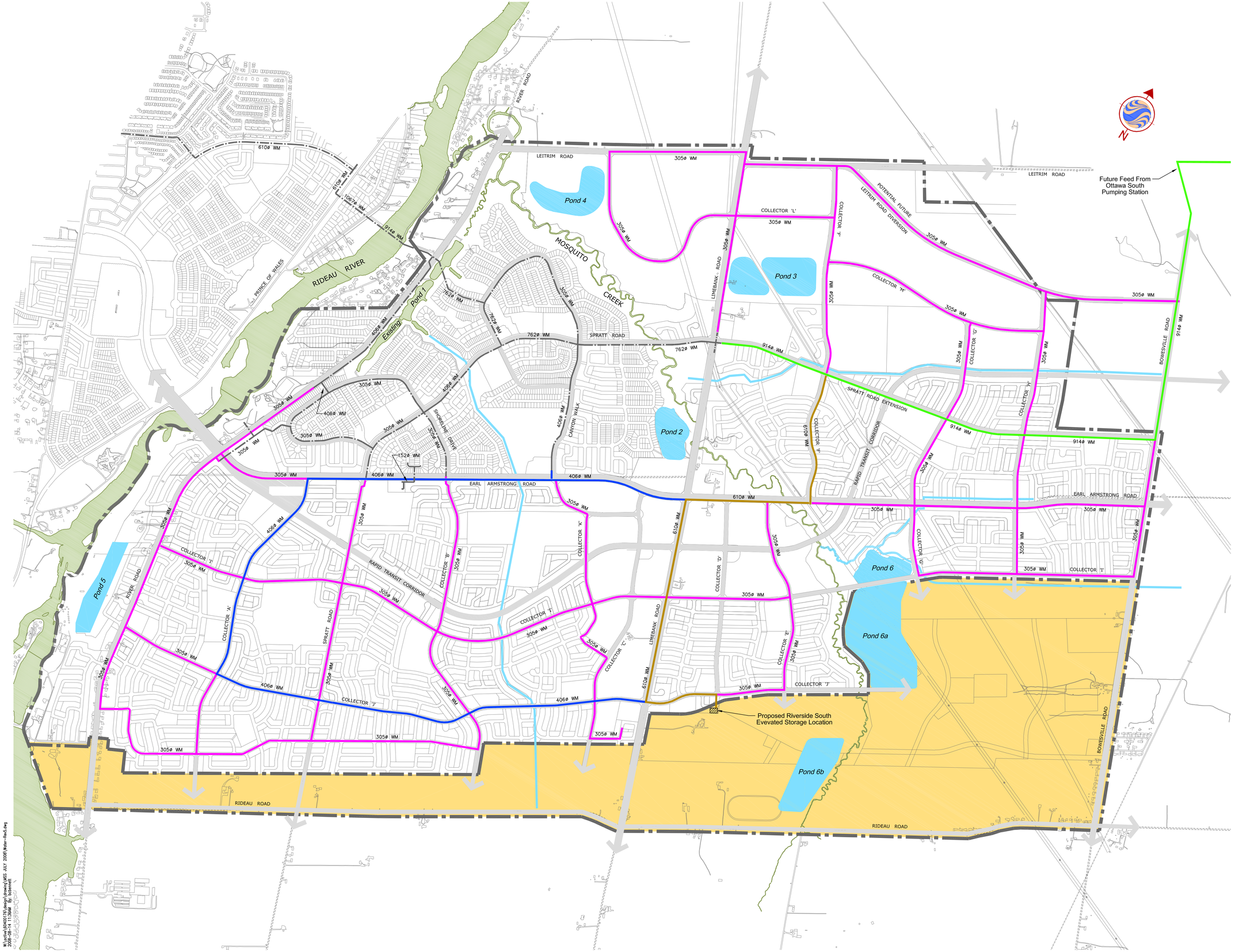
Maximum Pressure During BSDY

Project No.:

163401101

Figure No.:

5-4



Stantec Consulting Ltd.
1505 Laperriere Avenue
Ottawa ON Canada
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Tel. 613.722.4420
Fax. 613.722.2799
www.stantec.com

Legend

- Proposed SWM Facility
- Overland Flow Corridor
- Riverside South (Urban Boundary Limit)
- Existing Watermain
- Proposed 305Ø Watermain
- Proposed 406Ø Watermain
- Proposed 610Ø Watermain
- Proposed 914Ø Watermain
- Special Study Area (SSA)

Note:

1. See "River Ridge Water Supply Assessment" (Stantec - January 2005)

5	FINAL SUBMISSION	BCB	NG	JULY 30/08
4	FINAL REPORT (DRAFT)	BCB	NG	MAR 5/08
3	GENERAL REVISIONS	BCB	PM	JAN 25/08
2	REVISED TRANSIT ALIGNMENT	DRP	DRP	MAY 17/06
1	REVISED AS PER CITY COMMENTS	DFE	JK	FEB 14/05
Revision		By	Appd.	YY.MM.DD

File Name: 60400176-MSS	BCB	JK	FW	FEB. 2007
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Seal

Client/Project

Riverside South Development Corporation

Riverside South Community
Master Servicing Study Update
Ottawa ON Canada

Title

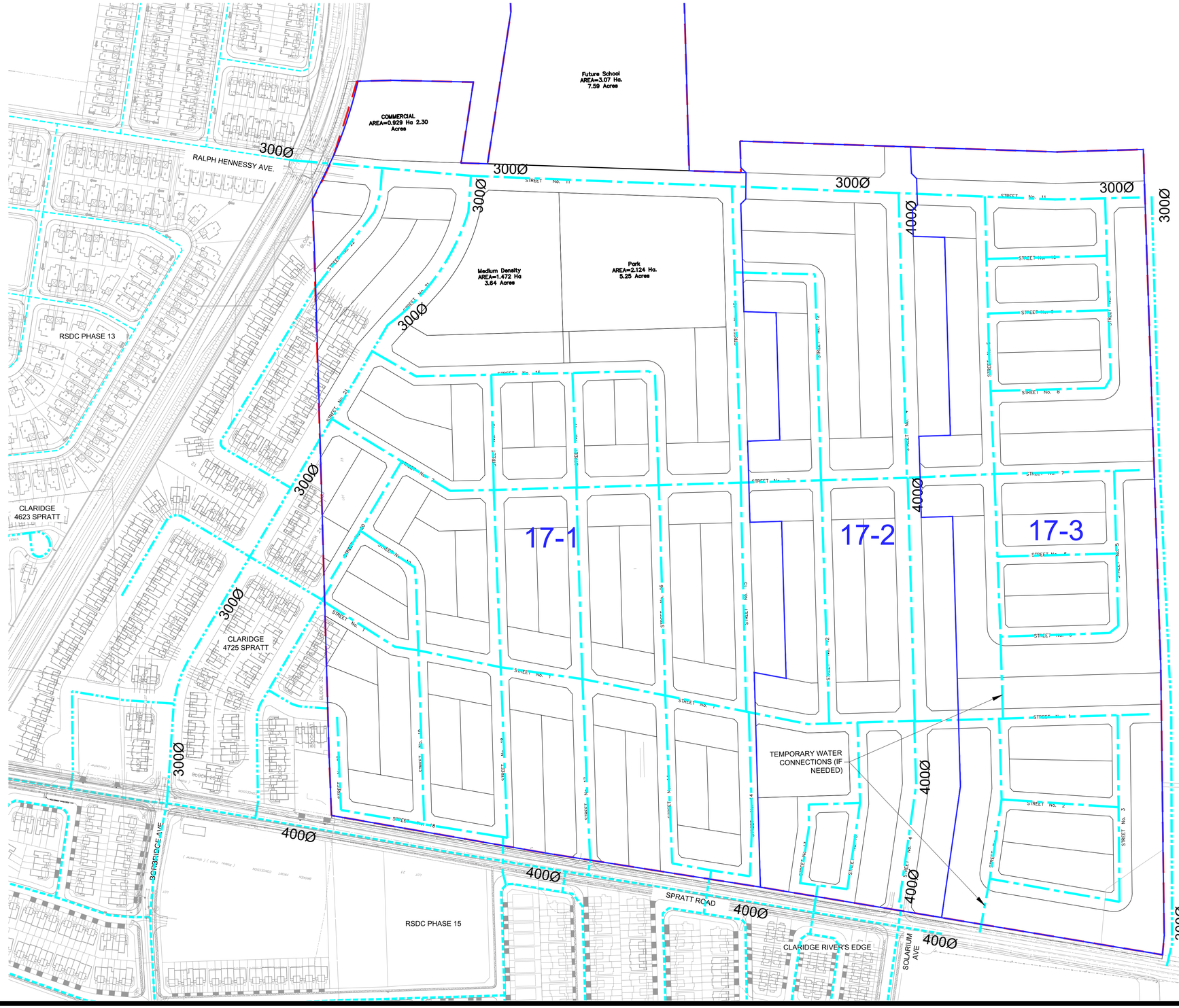
PROPOSED WATER SERVICING

Project No. 60400176	Scale 1:10,000 (0, 100, 300, 500m)	
Drawing No. WM-1	Sheet 7 of 7	Revision 5

LEGEND:

- PROPOSED WATERMAIN (IBI)
- PROPOSED WATERMAIN -SEPARATE APPLICATION(s)
- EXISTING WATERMAIN
- 300Ø PROPOSED WATERMAIN SIZING PER ISSU AND/OR MSS (ALL OTHER WATERMAINS TO BE LOCAL AND SIZED AT DETAILED DESIGN)

NOTE, WATERMAIN TO SOUTH OF SITE IS OUTSIDE OF SUBJECT LANDS AND NOT PART OF THIS APPLICATION



J:\125581_RSDCPhase17\7.0_Production\7.03_Design\04_Civil_LAND\Assessment Report\125581-FIG-2.1-WATER.dwg Layout Name: CONCEPTUAL WATER PLAN Last Saved By: James.Battison Last Saved At: Jul. 16, 20

Scale	Project Title	Drawing Title	Sheet No.
NTS	ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES RSDC PHASE 17 LANDS RIVERSIDE SOUTH COMMUNITY RIDEAU RIVER AREA	CONCEPTUAL WATER PLAN	FIGURE 2.1

APPENDIX C

STANTEC CONSULTING LTD.
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Legend

- Major Water
- Parcels
- Streets
- Rideau River Study Area
- Pond 5

Catchments

- **Catchment Name**
  Catchment Size (ha)

Sanitary Manholes

- **Sanitary Manholes**
- Existing Sanitary Sewers
- Recommended Sanitary Sewers

Client / Project:

CITY OF OTTAWA

RIVERSIDE SOUTH ISSU UPDATE

OTTAWA, ON

Title:

SANITARY DRAINAGE PLAN

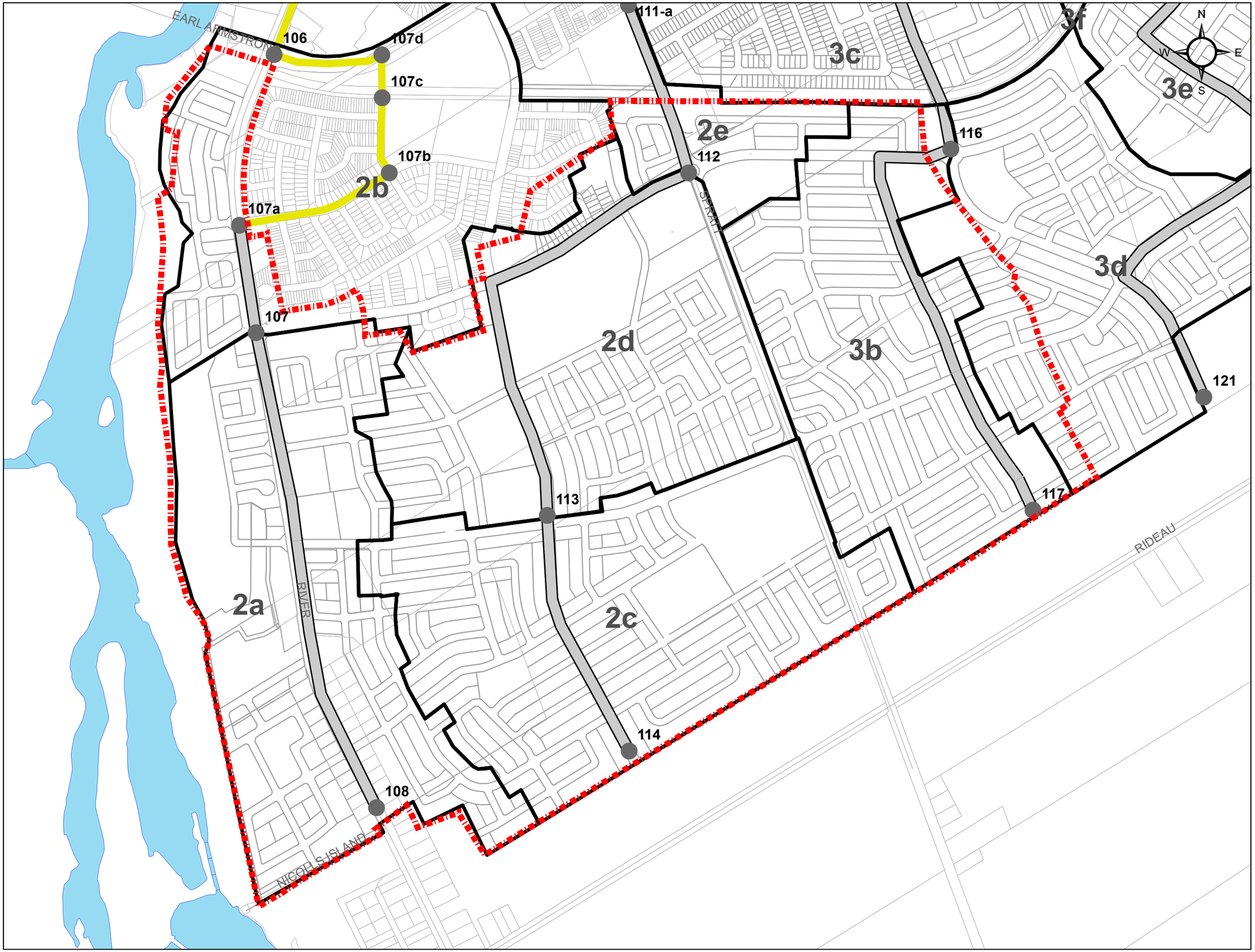
Project No.: **163401101**

Scale: 0 125 250 500 Meters

Drawing No.: **SAN-1**

Sheet: **6 of 7**

Revision: **0**



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Legend

- Rideau River Study Area
- Recomended Sanitary Catchments
- Sanitary Manholes
- Constructed Sanitary Sewers
- Recommended Sanitary Sewers

Client / Project:

CITY OF OTTAWA

RIVERSIDE SOUTH ISSU UPDATE

OTTAWA, ON

Title:

RECOMMENDED SANITARY SERVICING (2017 UPDATE)

Project No.: **163401101**

Scale: 0 62.5 125 250 Meters

Figure No.: **4-2**

Stantec

Riverside South Community
Infrastructure Servicing Study

Revision Date: June 5, 2017
Revison : 3
Designed by: Megan Young
Checked By: Amanda Lynch

SANITARY SEWER DESIGN SHEET

CITY CRITERIA & DENSITIES
Approved area

File Number: 1634-01101

DESIGN PARAMETERS

Average Daily Flow / Person:	350	l/p/day	Commercial:	0.579	l/s/ha
Minimum Velocity:	0.60	m/s	Employment	0.579	l/s/ha
n =	0.013		Institutional:	0.579	l/s/ha
Max Peaking Factor:	4.0		Infiltration:	0.280	l/s/ha
Min. Peaking Factor:	2.0				
Peaking Factor Industrial:	Based on Appendix 4-B		Low Density:	@ 3.2	pers/unit
Peaking Factor Comm. / Inst.:	1.5		Medium Density:	@ 2.4	pers/unit
			High Density:	@ 1.9	pers/unit

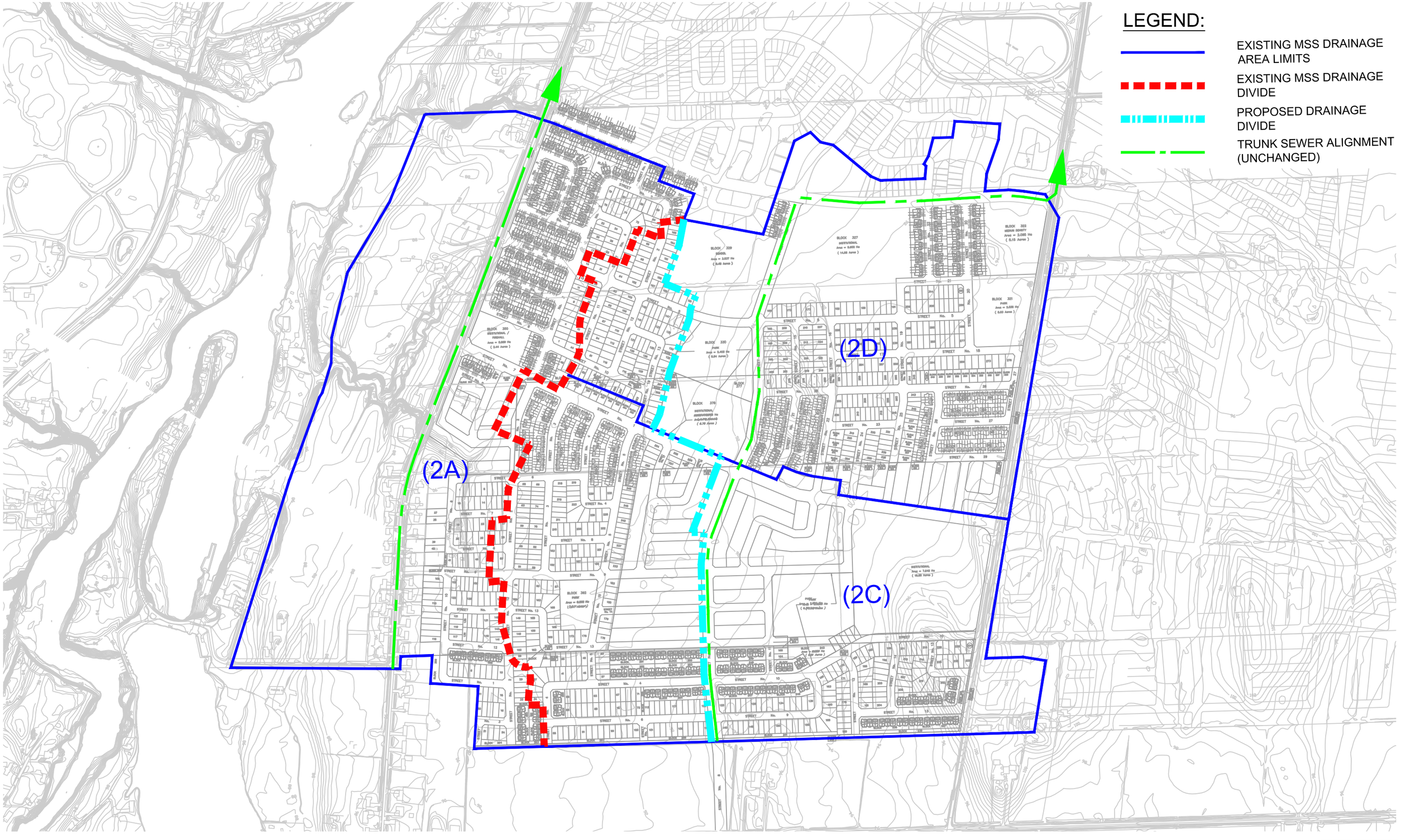
Existing Sanitary Sewer flows estimated by existing land use. Existing Phase 9 area contribution based on JLR 2011 report

STREET	ID Area	From MH	To MH	RESIDENTIAL AREA (ha)	LOW Area (ha)	LOW Pop.	LOW Accum. Pop.	MED Area (ha)	MED Pop.	MED Accum. Pop.	HIGH Area (ha)	HIGH Pop.	HIGH Accum. Pop.	Units	Accum. Units	Total Accum. Pop.	Peak Factor	Peak Flow (l/s)	COMMERCIAL Area (ha)	COMMERCIAL Accum. Area (ha)	EMPLOYMENT Area (ha)	EMPLOYMENT Accum. Area (ha)	INSTITUTIONAL Area (ha)	INSTITUTIONAL Accum. Area (ha)	C+I+I Peak Flow (l/s)	ROAD Area (ha)	ROAD Accum. Area (ha)	INFILTRATION Total Area (ha)	INFILTRATION Accum. Area (ha)	Infilt. Flow (l/s)	Total Flow (l/s)	PIPE Distance (m)	Diameter (mm)	Slope (%)	Qa/Qc	Capacity (Full) (l/s)	Velocity (Full) (m/s)	Velocity (Actual) (m/s)
RIVER ROAD	**2a**	108	107	50.51	44.40	2189	2189	6.11	389	389	0.00	0	0	846	846	2578	3.5	36.5	1.19	1.19	0.00	0.00	1.01	1.01	1.9	4.48	4.48	57.18	57.18	16.0	54.4	1255	450	0.12	0.53	103.0	0.63	0.63
RIVER ROAD	**2b Future**	107	107a	12.21	10.22	502	2691	1.99	127	516	0.00	0	0	210	1056	3207	3.4	44.4	0.00	1.19	0.00	0.00	0.00	1.01	1.9	2.64	7.12	14.85	72.03	20.2	66.5	254	525	0.12	0.43	155.4	0.70	0.66
RIVER ROAD	**2b Existing (Phase 9)**	107a	107b	43.20	43.20	2351	5042	0.00	0	516	0.00	0	0	N/A	1056	5558	3.2	72.1	0.00	1.19	0.00	0.00	2.46	3.47	4.0	0.00	7.12	45.66	117.69	33.0	109.1	**405**	**525**	**0.10**	**0.76**	**144.5**	**0.65**	**0.71**
RIVER ROAD		107b	107c	0.00	0.00	0	5042	0.00	0	516	0.00	0	0	0	1056	5558	3.2	72.1	0.00	1.19	0.00	0.00	0.00	3.47	4.0	0.00	7.12	0.00	117.69	33.0	109.1	**217**	**525**	**0.12**	**0.72**	**152.3**	**0.68**	**0.74**
RIVER ROAD		107c	107d	0.00	0.00	0	5042	0.00	0	516	0.00	0	0	0	1056	5558	3.2	72.1	0.00	1.19	0.00	0.00	0.00	3.47	4.0	4.70	11.82	4.70	122.39	34.3	110.4	**107**	**525**	**0.10**	**0.77**	**143.9**	**0.64**	**0.71**
		107d	106	0.00	0.00	0	5042	0.00	0	516	0.00	0	0	0	1056	5558	3.2	72.1	0.00	1.19	0.00	0.00	0.00	3.47	4.0	0.00	11.82	0.00	122.39	34.3	110.4	**278**	**525**	**0.08**	**0.90**	**123.3**	**0.55**	**0.63**
	Ex3	106	103	17.90	10.04	413	5455	7.86	564	1080	0.00	0	0	364	1420	6535	3.1	83.0	5.35	6.54	0.00	0.00	0.00	3.47	8.7	0.00	11.82	23.25	145.64	40.8	132.5	**835**	**525**	**0.10**	**0.93**	**141.9**	**0.63**	**0.73**
	Ex2	103	102	16.42	16.42	573	6028	0.00	0	1080	0.00	0	0	179	1599	7108	3.1	89.3	0.00	6.54	0.00	0.00	0.00	3.47	8.7	5.11	16.93	21.53	167.17	46.8	144.8	**1100**	**525**	**0.10**	**1.02**	**141.9**	**0.63**	**0.74**
SPRATT SOUTH	**2c**	114	113	53.79	51.84	2554	2554	1.95	125	125	0.00	0	0	850	850	2679	3.5	37.8	0.00	0.00	0.00	0.00	7.68	7.68	6.7	5.93	5.93	67.41	67.41	18.9	63.4	695	450	0.11	0.64	98.6	0.60	0.64
SPRATT SOUTH	**2d**	113	112	39.28	28.89	1424	3978	10.40	665	790	0.00	0	0	722	1572	4768	3.3	63.0	0.00	0.00	0.00	0.00	14.95	22.63	19.7	5.45	11.38	59.69	127.09	35.6	118.3	1155	525	0.11	0.79	148.8	0.67	0.74
SPRATT SOUTH	**2e**	112	111-a	17.48	0.00	0	3978	13.28	847	1637	4.19	479	479	605	2177	6094	3.2	78.1	2.55	2.55	0.00	0.00	0.00	22.63	21.9	6.14	17.52	26.17	153.26	42.9	142.9	470	525	0.12	0.92	155.4	0.70	0.80
SPRATT SOUTH		111-a	111	0.00	0.00	0	3978	0.00	0	1637	0.00	0	479	0	2177	6094	3.2	78.1	0.00	2.55	0.00	0.00	0.00	22.63	21.9	0.00	17.52	0.00	153.26	42.9	142.9	215	525	0.11	0.96	148.8	0.67	0.77
SPRATT SOUTH	**Ex4**	111	110	14.93	13.31	90	4068	1.62	468	2105	0.00	0	479	223	2400	6652	3.1	84.3	0.91	3.46	0.00	0.00	0.00	22.63	22.7	0.00	17.52	15.84	169.10	47.3	154.3	**600**	**525**	**0.12**	**0.99**	**155.4**	**0.70**	**0.81**
SHORELINE DRIVE	**3b**	117	116	48.13	43.40	2138	2138	4.73	302	302	0.00	0	0	794	794	2440	3.5	34.8	0.66	0.66	0.00	0.00	0.05	0.05	0.6	2.77	2.77	51.60	51.60	14.4	49.8	1270	450	0.11	0.51	98.6	0.60	0.60
SHORELINE DRIVE	**3c**	116	115	47.51	27.40	1350	3488	15.47	989	1291	4.64	530	530	1113	1907	5309	3.2	69.3	0.00	0.66	0.00	0.00	11.13	11.17	10.3	10.02	12.79	68.67	120.26	33.7	113.2	990	450	0.17	0.92	122.6	0.75	0.86
SHORELINE DRIVE	**Ex5**	115	110	20.60	14.47	480	3968	6.13	302	1593	0.00	0	530	276	2183	6091	3.2	78.1	0.80	1.46	0.00	0.00	3.16	14.33	13.7	0.00	12.79	24.56	144.82	40.6	132.3	**480**	**450**	**0.20**	**0.99**	**133.0**	**0.81**	**0.94**
SPRATT SOUTH	**Ex6**	110	109	25.47	20.32	822	8858	5.15	288	3986	0.00	0	1009	377	4960	13853	2.8	157.9	0.00	4.92	0.00	0.00	2.39	39.36	38.5	0.00	30.31	27.86	341.78	95.7	292.0	**675**	**675**	**0.12**	**0.96**	**303.8**	**0.82**	**0.95**
CANYON WALK DRIVE	**3d**	121	120	46.05	35.39	1744	1744	10.66	679	679	0.00	0	0	828	828	2423	3.5	34.5	0.60	0.60	0.00	0.00	3.72	3.72	3.8	5.41	5.41	55.78	55.78	15.6	53.9	820	450	0.15	0.47	115.2	0.70	0.69
CANYON WALK DRIVE	**3e**	120	119	54.06	40.27	1984	3728	13.79	881	1560	0.00	0	0	987	1815	5288	3.2	69.0	0.00	0.60	0.00	0.00	3.91	7.63	7.2	9.21	14.62	67.19	122.97	34.4	110.6	925	525	0.18	0.58	190.3	0.85	0.89
CANYON WALK DRIVE	**3f-4a**	119	118	17.44	0.00	0	3728	3.06	194	1754	14.38	1007	1007	577	2392	6489	3.1	82.5	6.01	6.61	0.00	0.00	5.28	12.92	17.0	16.75	31.37	45.49	168.46	47.2	146.6	880	525	0.19	0.75	195.6	0.88	0.97
internal south	**6a**	123	122	49.84	31.53	1555	1555	18.31	1169	1169	0.00	0	0	973	973	2724	3.5	38.4	1.18	1.18	0.00	0.00	5.33	5.33	5.7	6.44	6.44	62.80	62.80	17.6	61.6	600	525	0.14	0.37	167.9	0.75	0.68
ARMSTRONG ROAD	**4b**	122	118	58.24	0.00	0	1555	0.00	0	1169	58.24	4070	4070	2005	2978	6794	3.1	85.8	24.34	25.53	0.00	0.00	0.00	5.33	26.8	24.91	31.35	107.49	170.29	47.7	160.3	1810	600	0.13	0.69	231.0	0.79	0.86
CANYON WALK DRIVE	**Ex1**	118	124	45.64	22.12	896	6179	23.52	1687	4610	0.00	0	5077	983	6353	15866	2.8	177.0	1.55	33.69	0.00	0.00	0.00	18.25	45.1	0.00	62.72	47.19	385.94	108.1	330.2	**860**	**750**	**0.15**	**0.73**	**449.8**	**0.99**	**1.08**
SPRATT ROAD	**5c**	130	129	25.52	20.06	989	989	5.46	348	348	0.00	0	0	454	454	1337	3.7	20.1	0.00	0.00	0.00	0.00	2.38	2.38	2.1	4.86	4.86	32.77	32.77	9.2	31.4	420	600	0.15	0.13	248.1	0.85	0.56
SPRATT ROAD	**1a**	129	128	10.26	7.00	346	1335	3.26	209	557	0.00	0	0	195	649	1892	3.6	27.6	0.00	0.00	0.00	0.00	0.00	2.38	2.1	7.76	12.63	18.02	50.79	14.2	43.9	450	675	0.15	0.13	339.6	0.92	0.61
SPRATT ROAD	**1b**	128	127	18.80	4.11	202	1537	13.56	866	1423	1.13	129	129	492	1141	3089	3.4	42.9	0.00	0.00	0.00	0.00	2.82	5.20	4.5	5.34	17.97	26.97	77.76	21.8	69.2	490	675	0.15	0.20	339.6	0.92	0.70
internal north	**5b**	135	134	17.31	10.06	496	496	7.25	463	463	0.00	0	0	348	348	959	3.8	14.8	0.00	0.00	0.00	0.00	0.03	0.03	0.0	1.32	1.32	18.66	18.66	5.2	20.1	385	375	0.15	0.28	70.8	0.62	0.53
internal north	**1d**	134	127	21.95	12.43	611	1107	9.52	607	1070	0.00	0	0	444	792	2177	3.6	31.4	2.66	2.66	0.00	0.00	0.01	0.04	2.3	4.33	5.66	28.95	47.61	13.3	47.0	550	375	0.15	0.66	70.8	0.62	0.67
	BP-1	137	127	39.70	20.70	1173	1173	17.00	1019	1019	2.00	398	398	891	891	2590	3.5	36.7	0.00	0.00	16.18	16.18	0.00	0.00	9.4	6.81	6.81	62.69	62.69	17.6	63.6	725	375	0.15	0.90	70.8	0.62	0.71
SPRATT ROAD	**1c**	127	126	14.01	0.00	0	3817	8.98	574	4086	5.03	574	1101	541	3365	9004	3.0	109.4	0.74	3.40	0.00	16.18	6.60	11.84	22.6	6.42	36.86	27.77	215.82	60.4	192.4	795	750	0.15	0.43	449.8	0.99	0.94
internal north	**5a**	133	132	11.48	4.65	230	230	6.83	437	437	0.00	0	0	254	254	667	3.9	10.6	1.02	1.02	0.00	0.00	1.15	1.15	1.9	4.02	4.02	17.68	17.68	5.0	17.4	410	375	0.15	0.25	70.8	0.62	0.50
internal north	**1e**	132	126	34.06	22.08	1088	1318	11.98	766	1203	0.00	0	0	659	913	2521	3.5	35.8	0.00	1.02	0.00	0.00	1.37	2.52	3.1	6.18	10.21	41.61	59.29	16.6	55.5	810	450	0.15	0.48	115.2	0.70	0.69
	BP-2	138	126	0.11	0.00	0	0	0.11	7	7	0.00	0	0	3	3	7	4.0	0.1	0.00	0.00	15.00	15.00	0.00	0.00	8.7	1.48	1.48	16.59	16.59	4.6	13.4	440	375	0.15	0.19	70.8	0.62	0.46
SPRATT ROAD	**1g**	126	125	14.19	1.66	83	5218	9.47	605	5901	3.05	348	1449	461	4742	12568	2.9	145.4	0.98	5.40	0.00	31.18	10.12	24.48	44.0	3.45	52.00	28.74	320.44	89.7	279.1	710	750	0.17	0.58	478.9	1.05	1.09
SPRATT ROAD	**1f**	131	125	9.29	5.05	250	250	4.24	271	271	0.00	0	0	191	191	521	4.0	8.4	0.00	0.00	0.00	0.00	0.00	0.00	0.0	3.48	3.48	12.77	12.77	3.6	11.9	420	300	0.20	0.26	45.1	0.62	0.51
	BP3	136	125	0.00	0.00	0	0	0.00	0	0	0.00	0	0	0	0	0	0.0	0.0	0.00	0.00	38.46	38.46	0.00	0.00	22.3	5.69	5.69	44.15	44.15	12.4	34.6	986	375	0.14	0.51	68.4	0.60	0.60
SPRATT ROAD	**1h**	125	124	1.69	0.00	0	5468	1.69	108	6280	0.00	0	1449	45	4978	13197	2.8	151.5	2.20	7.60	0.00	69.64	1.66	26.14	69.6	3.04	64.20	8.59	385.95	108.1	329.2	**830**	**900**	**0.15**	**0.45**	**731.4**	**1.11**	**1.07**
SPRATT ROAD	**Ex7**	124	109	17.26	11.40	768	12415	3.00	250	11140	2.86	327	6853	516	11847	30408	2.5	304.4	0.64	41.93	0.00	69.64	0.00	44.39	115.3	0.00	126.93	17.90	789.79	221.1	640.9	**515**	**1050**	**0.15**	**0.58**	**1103.3**	**1.23**	**1.28**
CANYON WALK DRIVE	**Ex8**	109	102	56.40	54.40	2150	23423	2.00	134	15260	0.00	0	7862	728	17535	46545	2.3	432.5	0.00	46.85	0.00	69.64	0.00	83.75	153.7	5.45	162.68	61.85	1193.42	334.2	920.4	**1100**	**1050**	**0.15**	**0.83**	**1103.3**	**1.23**	**1.39**
SPRATT ROAD	**BP-4**	139	102	0.00	0.00	0	0	0.00	0	0	0.00	0	0	0	0	0	0.0	0.0	0.00	0.00	127.52	127.52	0.00	0.00	169.8	19.76	19.76	147.28	147.28	41.2	211.1	2790	675	0.15	0.62	339.6	0.92	0.97
CROSSING		102	101	0			29451			16340			7862		**19134**	**53653**	2.2	486.0		53.39		197.16		87.21	384.7		199.37	0	1507.87	422.2	1292.9	**145**	**1200**	**0.11**	**0.96**	**1349.0**	**1.16**	**1.33**

CROSSING

***Note:**
Area BP-4 also accounts for additional 39ha area outside the CDP that was accounted for in calculation of Employment Area
PIPE Capacity (Full) calculated using ACTUAL PIPE SIZE
Limiting Capacity Calculated based on 1200 mm pipe @ 0.11% between Rideau Road and River
Additional sanitary flow of 29.21 L/s from Rideau Carleton Raceway (RCR) is not included in the above calculation, as it is proposed that flow from this area be pumped into the system at off-peak times

J:\103291_RyrsideSPh15\5.9 Drawings\59civil\current\FIGURES\FIGURE S-1.dwg Layout Name: FIGURE S-1 Plot Scale: 1:5.13 Plotted At: 6/29/2017 Last Saved By: chris.cormier Last Saved At: Jun. 29, 17



Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	RIVERSIDE SOUTH RIDEAU RIVER POND 5 DRAINAGE AREA	ALTERNATIVE SANITARY DRAINAGE LIMIT	FIGURE S-1

Jim Moffatt

From: Sevigny, John <John.Sevigny@ottawa.ca>
Sent: Thursday, July 20, 2017 10:18 AM
To: Bob Wingate
Cc: Terry Brule; Jim Moffatt
Subject: RE: Riverside South , Rideau River Drainage Area

Hi Bob.
Yes, this is satisfactory.
Regards,

*****Absence alert: Please note that I will be out of the office as of July 31, 2017 and will be returning to the office on August 8, 2017*****

John Sevigny, C.E.T.
Project Manager, Infrastructure Approvals
Development Review, Suburban Services | *Examen des projets d'aménagement, Services suburbains*
Planning, Infrastructure and Economic Development Department | Services de la planification, de l'infrastructure et du développement économique
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West. Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste **14388**, fax/téléc:613-580-2576, john.sevigny@ottawa.ca

---

From: Bob Wingate [mailto:rwingate@IBIGroup.com]
Sent: Wednesday, July 19, 2017 10:18 AM
To: Sevigny, John <John.Sevigny@ottawa.ca>
Cc: Terry Brule <tbrule@IBIGroup.com>; Jim Moffatt <jmoffatt@IBIGroup.com>
Subject: Fw: Riverside South , Rideau River Drainage Area

Hi John
We assume this satisfies your requirement for acknowledgment from Cardel regarding concurrence with our proposed Revision to the sanitary drainage limit for the River Road trunk sewer.
Regards
Bob

Sent from my BlackBerry 10 smartphone on the Bell network.

From: Matt Wingate <MWingate@dsel.ca>
Sent: Tuesday, July 18, 2017 10:37 PM
To: John Sevigny
Cc: Bob Wingate; Terry Brule
Subject: Fwd: Riverside South , Rideau River Drainage Area

Hi John,
Please find Lisa Dalla Rosa's agreement below to IBI's proposed sanitary drainage plan described below.
Please feel free to call if you have any questions or need further input from our end.
Thanks

Matt Wingate, P.Eng.
DSEL
david schaeffer engineering ltd.

Begin forwarded message:

From: Lisa Dalla Rosa <lisa.dallarosa@cardelhomes.com>
Date: July 18, 2017 at 12:36:59 PM EDT
To: Matt Wingate <MWingate@dsel.ca>
Subject: RE: Riverside South , Rideau River Drainage Area

Agreed.
LDR

From: Matt Wingate [mailto:MWingate@dsel.ca]
Sent: Thursday, July 13, 2017 11:43 AM
To: Lisa Dalla Rosa <lisa.dallarosa@cardelhomes.com>
Cc: Laura Maxwell <LMaxwell@dsel.ca>; 'Bob Wingate P.Eng. (rwingate@ibigroup.com)' <rwingate@ibigroup.com>
Subject: RE: Riverside South , Rideau River Drainage Area

Hi Lisa,

IBI has requested that acceptance of their sanitary proposal come directly from Cardel. Can you respond to this email with your agreement?

Thanks

Matt

From: Matt Wingate
Sent: July 12, 2017 1:38 PM
To: 'Lisa Dalla Rosa (lisa.dallarosa@cardelhomes.com)' <lisa.dallarosa@cardelhomes.com>
Cc: Laura Maxwell <LMaxwell@dsel.ca>
Subject: FW: Riverside South , Rideau River Drainage Area

Hi Lisa,
Please see below related to the Urbandale/Claridge/Cardel coordinated sanitary servicing plan for Riverside south, as discussed two weeks ago.
Let me know if you have any questions.
We will forward the final draft of our functional servicing report to you shortly for your review.

Matt

From: Matt Wingate
Sent: July 12, 2017 1:35 PM
To: 'Bob Wingate' <rwingate@IBIGroup.com>
Cc: Steve Pichette <SPichette@dsel.ca>; Terry Brule <tbrule@IBIGroup.com>; Sevigny, John <John.Sevigny@ottawa.ca>
Subject: RE: Riverside South , Rideau River Drainage Area

Ayt Fig S1

Hi Bob;
Thanks for including us in this circulation.
I can confirm that we are in agreement with your proposal to include Cardel's developable property area west of the Brian Good collector road within the River Road trunk sanitary sewer catchment, as illustrated in your Figure S-1.

We are currently finalizing our functional servicing report to be submitted in support of Cardel's application for plan of subdivision approval, and we will present a preferred alternative wastewater servicing plan for Cardel's subdvision that will match the drainage boundaries presented in IBI's proposal.
If there are any further questions or you require additional info related to our proposed servicing plan, please do not hesitate to call.

regards

Matt Wingate, P.Eng.
Manager of Design Administration

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

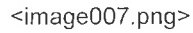
phone: (613) 836-0856 ext 522
direct: (613) 836-1522
cell: (613) 858-4975
e-mail: mwingate@DSEL.ca

From: Bob Wingate [mailto:rwingate@IBIGroup.com]
Sent: July 12, 2017 11:46 AM
To: Matt Wingate <MWingate@dsel.ca>
Cc: Steve Pichette <SPichette@dsel.ca>; Terry Brule <tbrule@IBIGroup.com>; Sevigny, John <John.Sevigny@ottawa.ca>
Subject: FW: Riverside South , Rideau River Drainage Area

Hi Matt
We have submitted our sanitary analysis for Riverside South to the City of Ottawa(John Sevigny) for their review and approval , as per our previous discussion. This morning John called to advise that he has circulated this request to expand the tributary area to the River Road trunk sanitary sewer and use the revised sanitary design parameters currently being considered by the City internally at the City . To support this submission he would appreciate it if we could get confirmation from Cardel / DSEL that you have seen this proposal and that you are in general agreement with the proposed drainage expansion through Cardel's lands as an initial servicing scenario. The e-mail below and supporting attachments included is a complete copy of the submission to reconfirm it is consistent with our discussions .
If you would provide us with the confirmation John is requesting that would be appreciated so we can ensure that this request maintains momentum at the City .

Bob Wingate

IBI GROUP
400-333 Preston Street
Ottawa ON K1S 5N4 Canada
tel +1 613 225 1311 fax +1 613 225 9868



From: Bob Wingate
Sent: Thursday, June 29, 2017 2:20 PM
To: Sevigny, John <John.Sevigny@ottawa.ca>
Cc: Terry Brule (tbrule@ibigroup.com) <tbrule@ibigroup.com>; Marcel Denomme (mdenomme@urbandale.com) <mdenomme@urbandale.com>; Jim Burghout (jim.burghout@claridgehomes.com) <jim.burghout@claridgehomes.com>; Matt Wingate <mwingate@dsel.ca>
Subject: Riverside South , Rideau River Drainage Area

Get Plan + Spreadsheet

Hi John
Further to our previous discussions , attached is a figure which illustrates a proposed expansion of the River Road trunk sanitary sewer tributary area , easterly from the existing developed area to the north to the south limit of the urban boundary . This figure shows the drainage divide between the River Road sanitary collector sewer and the Spratt Road collector as currently proposed in the recently updated MSS , overlaid on the latest draft plans as proposed by the three major developers in the area (RSDC , Claridge , and Cardel) . also shown on this figure is a proposed expansion of the River Road collector drainage area easterly based on the use of monitored parameters from the current City design guidelines , as suggested by John Bougadis , and the use of revised design parameters currently being considered by the City for the undeveloped portion of the proposed tributary area to the River Road trunk sewer . To support the proposed expanded drainage area to the River Road trunk sewer we have recreated the sanitary spread sheet from the MSS and attached a copy of the unaltered version of this spread sheet for your use in confirming that the analysis prepared by IBI is based on exactly the same assumptions regarding land use , density , etc. as the final MSS document . The second spread sheet attached has only the design parameters for the areas tributary to the River Road trunk sewer adjusted to reflect the use of monitored parameters for the built out areas , and revised design parameters for the undeveloped areas tributary to the River Road trunk sewer . This last spread sheet demonstrates that the proposed expanded drainage area can be accommodated in the existing River Road collector sewer without surcharging the system . Given that this expanded drainage area significantly reduces the potential for grade raise issues , maximizes the use of parallel sewers in the local road network , and improves phasing potential for all three major developers involved , we request that the City confirm acceptance of this proposal as a minor adjustment to the MSS , so that all three developers can finalize their individual serviceability reports based on this revision to the drainage areas.
It should be noted that IBI represents both Claridge and RSDC for this development area and that we have met with DSEL who represents Cardel , the other major developer in the area , and all three developers are in agreement with the proposed new drainage limit , and support the implementation of this change .
If you have any questions regarding this submission please do not hesitate to contact me directly .

Regards

Bob Wingate

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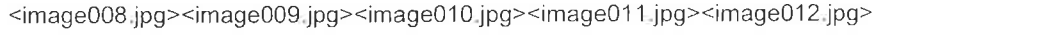
tel +1 613 225 1311 fax +1 613 225 9868



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Memorandum

To/Attention:	John Sevigny, City of Ottawa Marcel Denomme, Urbandale (RSDC) Jim Burghout, Claridge Homes	**Date:**	July 25, 2017
From:	Robert W. Wingate	**Project No:**	38269-5.3.1
cc:			
Subject:	**DEVIATION REPORT MEMORANDUM RIVERSIDE SOUTH, RIDEAU RIVER DRAINAGE AREA SANITARY SEWER DESIGN PARAMETERS**		

INTRODUCTION:

Urbandale Corporation (RSDC), Claridge Homes and Cardel Homes are in the process of advancing the development of their lands in Riverside South located in the area known as the Rideau River Drainage Area (Figure A-1 illustrates the ownership limits).

As part of the draft plan approval process, IBI Group has been retained to prepare “Adequacy of Services Reports” to support the proposed development of the RSDC lands and the Claridge lands. In reviewing the Final Master Servicing Study (MSS) IBI Group has determined that an alternative method of calculating the design flow for the trunk sanitary sewer in River Road will be beneficial to the design of the internal sanitary sewer system for the subject area, and will ultimately benefit development of the overall development area.

PURPOSE:

The purpose of this memorandum is to present the alternative method of design for the River Road Sanitary Collector Sewer, identify the benefits of implementing the proposed deviation, and request approval to proceed with the implementation of the proposed deviation in design procedure.

JUSTIFICATION:

In advancing the detailed local sanitary sewer system layout for the development lands in the Rideau River Drainage Area west of Spratt Road, it became apparent that the drainage divide between the River Road Sanitary Collector Sewer and the Spratt Road Collector Sewer was problematic as presented in the recent update to the MSS for this area. The combination of the Spratt Road Collector Sewer being significantly higher than the River Road Collector, and the fact that the existing ground surface drops off significantly between the Spratt Road Collector and the current drainage divide is problematic as proposed in the updated MSS. It is problematic because these facts combine to produce a high risk of grade raise issues along the corridor between the Spratt Road sewer and the drainage divide. This grade raise risk is further compounded by the fact that the MSS drainage proposal results in reverse flowing sewers between the sanitary sewer and storm sewer on most streets in that area.

John Sevigny, City of Ottawa
Marcel Denomme, Urbandale (RSDC)
Jim Burghout, Claridge Homes
July 25, 2017

The simple solution to resolve all these issues is to expand the drainage limit of the deeper River Road Collector sewer easterly. Figure A-2 illustrates the proposed expansion of the River Road Collector Sewer Drainage Area. This adjustment to the drainage area reduces the potential for grade raise issues, maximizes the use of parallel sewers in the local road network, and improves the phasing potential for all three developers.

The problem with implementing the proposed expansion of the River Road Collector Sewer drainage area is that the free flow design capacity of the existing River Road Collector Sewer is exceeded using the City of Ottawa's current design guideline design parameter for sanitary sewers. To alleviate this theoretical issue we have evaluated the River Road Sanitary Collector Sewer using monitored parameters for the existing development area tributary to the River Road Collector Sewer, and the City's proposed revised sanitary sewer design parameters, as presented in Table 1, for the remainder of the development area tributary to the River Road Collector Sewer. The attached spreadsheet was created to replicate the sanitary spreadsheet in the current MSS. The City's proposed revised design parameters were then applied to the un-built area tributary to the River Road Collector Sewer using the proposed expanded drainage area (see pink highlighted section of spreadsheet). The modified spreadsheet demonstrates that the River Road Collector Sewer's capacity under free flow conditions is not exceeded at build-out under this design scenario.

CONCLUSION:

Given the significance of the benefits to expanding the River Road Sanitary Collector Sewers drainage area easterly, including reducing the risk of grade raise issues, maximizing the use of parallel sanitary and storm sewers, and enhancing construction phasing potential for all three developers involved, it is recommended that the City approve the use of the revised sanitary sewer design parameters for use in the Riverside South Rideau River Drainage Area in advance of formal approval of these revised parameters. In considering this recommendation, it should also be noted that shifting the drainage areas as proposed will provide additional residual capacity in the more easterly Spratt Road Sanitary Collector Sewer. This will help support more intensification beyond that currently proposed in the existing CDP for the eastern portion of the development area. This is consistent with the City's Building Better Smarter Suburbs (BBSS) initiative and the recent decision to extend the next phase of the LRT to Riverside South. Given these recent facts the City may want to approve the use of the proposed revised sanitary sewer design parameters for all of Riverside South at this time, to maximize the implementation of the BBSS initiative and further support the imminent extension of the LRT to Riverside South by facilitating additional intensification of development.

Yours truly,

IBI GROUP

Robert W. Wingate, P. Eng.
Associate

RWW/ks
Encl.

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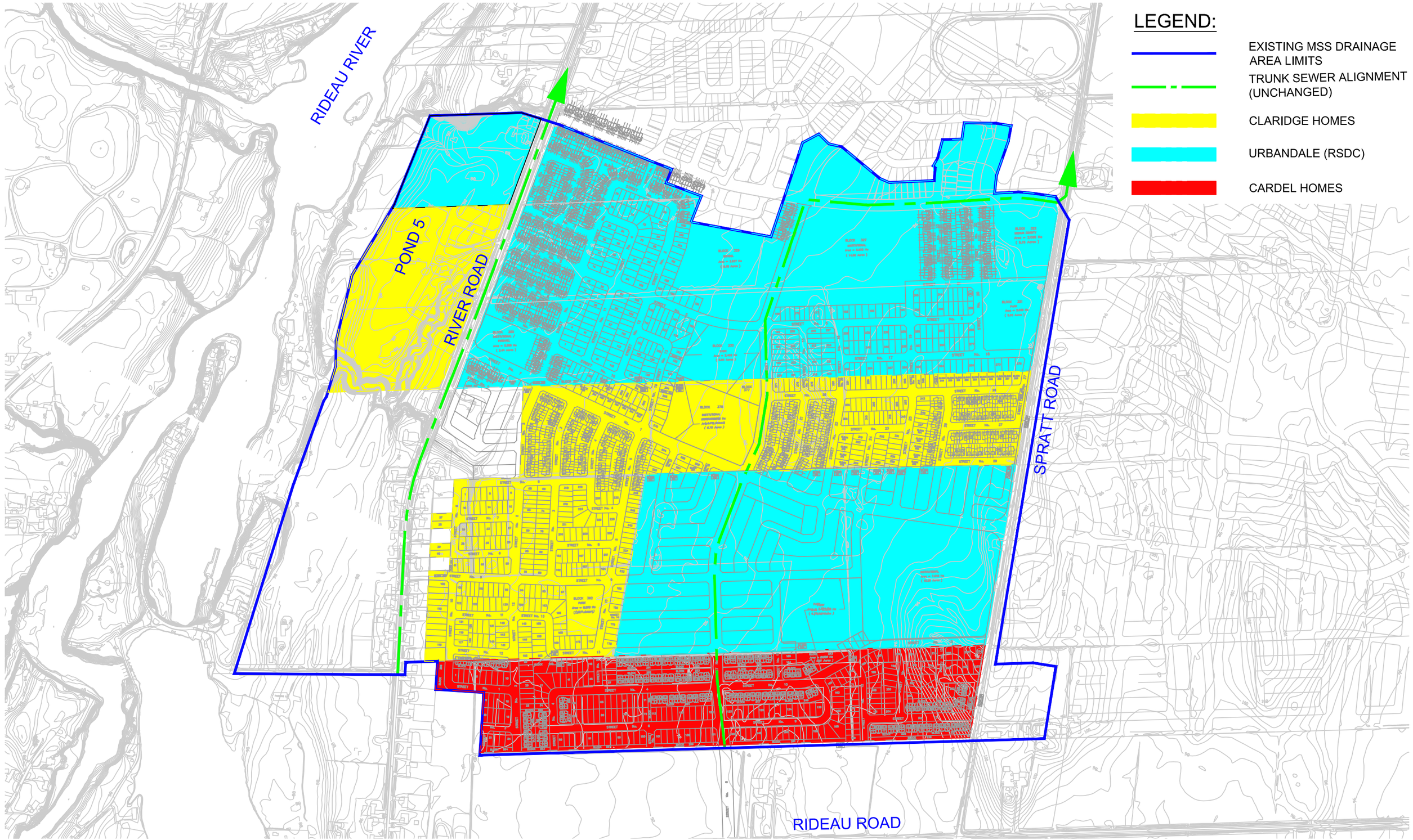
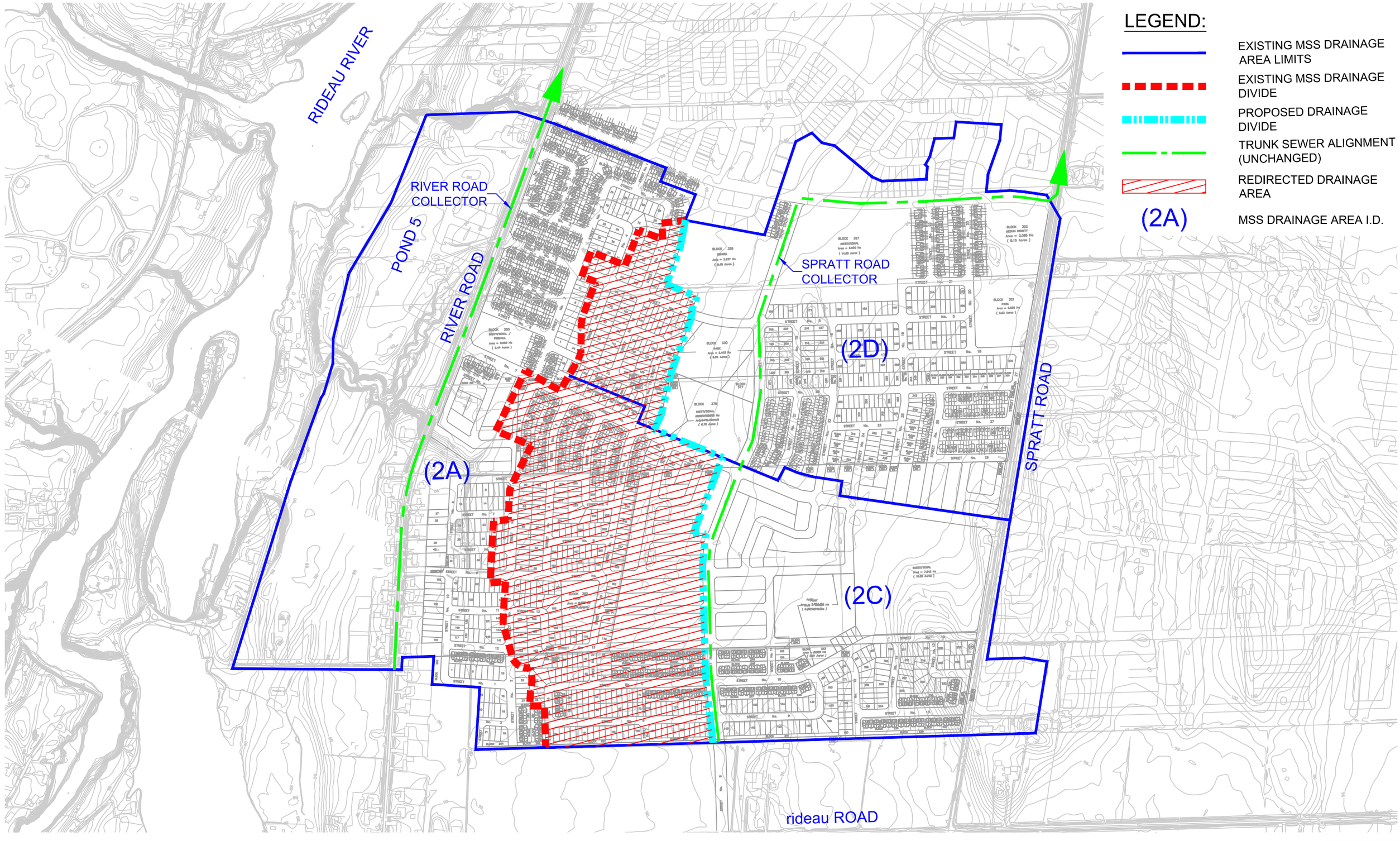


J:\38269-RiversideSthPh15\5.9 Drawings\59civil\current\Deviation Report figures\FIGURE A-1.dwg Layout Name: FIGURE A-1 Plot Scale: 1:5.13 Plotted At: 7/25/2017 Last Saved By: chris.cormier Last Saved At:

Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	RIVERSIDE SOUTH RIDEAU RIVER POND 5 DRAINAGE AREA	OWNERSHIP	FIGURE A-1



J:\38269-RiversideSthPh15\5.9 Drawings\59civil\current\Deviation Report figures\FIGURE A-2.dwg Layout Name: FIGURE S-1 Plot Scale: 1:5.13 Plotted At: 7/25/2017 Last Saved By: chris.cormier Last Saved A

IBI

Scale: N.T.S.

Project Title: RIVERSIDE SOUTH RIDEAU RIVER POND 5 DRAINAGE AREA

Drawing Title: ALTERNATIVE SANITARY DRAINAGE LIMIT

Sheet No.: FIGURE A-2

Table 1

Parameters	Current			Proposed		
	Design	Annual	Rare	Design	Annual	Rare
Res. Per Capita	350	300	300	280 [1]	200 [2]	200 [2]
Commercial	50000	17000	17000	28000	17000 [4]	17000 [4]
Institutional	50000	17000	17000	28000	17000 [4]	17000 [4]
Industrial	35000	10000	10000	35000 [4]	10000 [4]	10000 [4]
I/I dry	n/a	n/a	n/a	0.05	0.02*	0.02*
I/I wet	0.28	0.28*	0.5*	0.28	0.28*	0.53*
Total I/I	0.28	0.28*	0.5*	0.33	0.3	0.55 [3]
Harmon - Correction Factor	1	0.4-0.6	0.4-0.6	0.8	0.6	0.6
ICI Peak Factor	1.5	1	1	1.5/1 [5]	1	1

* or higher with the support of monitoring data

[1] 280 L/cap/day = 90th percentile based on statistical analysis of new development

[2] 200 L/cap/day = 70th percentile for new development, 60th percentile for old development

[3] 0.53 L/ha/day = interim value to be reviewed in 2017

[4] Values to be reviewed in 2017

[5] ICI Peak Factor = 1.5 if ICI in contributing area is >20%, 1.0 if ICI in contributing area is <20%

Notes:

1) Sewers in new subdivisions shall be designed to operate under free flow conditions during peak flow periods.

2) During a catastrophic failure at a wastewater pump station, the HGL in the sanitary sewer system shall be below the underside of footing for the "Annual Event" flow condition.

3) A minimum freeboard of 0.3 m is required under a "Rare Event" flow condition. For areas serviced by a pump station, assume the station is operating at its rated capacity (rated capacity to be confirmed by ESD staff).

4) Preferably, the elevation of the sanitary overflow conduit should be above the 100 yr stormwater elevation. The overflow elevation can be lowered to the 25 year storm event on a case-by-case basis.

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REVISED RIVER ROAD COLLECTOR ANALYSIS

- EXISTING DEVELOPMENT USING MONITORED PARAMETERES FROM DESIGN GUIDELINES
- NEW DEVELOPMENT USING PROPOSED REVISIONS TO DESIGN GUIDELINES

SANITARY SEWER DESIGN SHEET

38269 - Riverside South Community Infrastructure Servicing Study
CITY OF OTTAWA

LOCATION				RESIDENTIAL																ICI AREAS							INFILTRATION ALLOWANCE				TOTAL FLOW	PROPOSED SEWER DESIGN						
				TOTAL AREA (Ha)	LOW DENSITY			MED DENSITY			HIGH DENSITY			TOTAL UNITS	POPULATION		PEAKING FACTOR			PEAK FLOW (L/s)	AREA (Ha)						PEAK FLOW (L/s)	ROAD AREA (Ha)	AREA (Ha)		FLOW		CAPACITY	LENGTH	DIA	SLOPE	VELOCITY	AVAILABLE	
STREET	AREA ID	FROM MH	TO MH		AREA (Ha)	POP	CUM POP	AREA (Ha)	POP	CUM POP	AREA (Ha)	POP	CUM POP		IND	CUM	STANDARD	CORRECTED			COMMERCIAL		EMPLOYMENT		INSTITUTIONAL				IND	CUM	(L/s)						CAPACITY	
																	PF	K	PF		IND	CUM	IND	CUM	IND	CUM											L/s	(%)
RIVER ROAD	2a + 2c(i) + 2c(ii) + 2d(i)	108	107	91.61	64.95	3202	3202	26.66	1721	1721	0.00	0	0	1718	4922	4922	3.25	0.80	2.60	41.49	1.19	1.19	0.00	0.00	1.01	1.01	1.07	4.48	98.28	98.28	32.43	74.99	103.03	1255	450	0.12	0.63	28.04	27.21%
RIVER ROAD	---	107	107a	0.00	0.00	0	0	0.00	0	0	0.00	0	0	0	0	0	3.20	0.60	1.92	0.00	0.00	1.19	0.00	0.00	0.00	1.01	1.07	0.00	0.00	0.00	0.00	84.50	155.42	254	525	0.12	0.70	70.92	45.63%
	2b FUTURE			12.21	10.22	502	3704	1.99	127	1848	0.00	0	0	0	629	5551		0.80	2.56	46.09								2.64	14.85	113.13	37.33							
RIVER ROAD	2b Existing (Phase 9)	107a	107b	43.20	43.20	2351	2351	0.00	0	0	0.00	0	0	N/A	2351	2351	3.06	0.60	1.83	14.97	0.00	1.19	0.00	0.00	2.46	3.47	2.27	0.00	43.20	43.20	12.10	111.45	141.88	405	525	0.10	0.63	30.43	21.45%
	---			0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.44	43.98								0.00	2.46	115.59	38.15							
RIVER ROAD	---	107b	107c	0.00	0.00	0	2351	0.00	0	0	0.00	0	0	0	0	2351	3.06	0.60	1.83	14.97	0.00	1.19	0.00	0.00	0.00	3.47	2.27	0.00	0.00	43.20	12.10	111.45	173.76	217	525	0.15	0.78	62.32	35.86%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.44	43.98								0.00	0.00	115.59	38.15							
	---	107c	107d	0.00	0.00	0	2351	0.00	0	0	0.00	0	0	0	0	2351	3.06	0.60	1.83	14.97	0.00	1.19	0.00	0.00	0.00	3.47	2.27	0.00	0.00	43.20	12.10	113.00	141.88	107	525	0.10	0.63	28.88	20.36%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.44	43.98								4.70	4.70	120.29	39.70							
	---	107d	106	0.00	0.00	0	2351	0.00	0	0	0.00	0	0	0	0	2351	3.06	0.60	1.83	14.97	0.00	1.19	0.00	0.00	0.00	3.47	2.27	0.00	0.00	43.20	12.10	113.00	126.90	278	525	0.08	0.57	13.90	10.95%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.44	43.98								0.00	0.00	120.29	39.70							
	Ex3	106	103	17.90	10.04	413	2764	7.86	564	564	0.00	0	0	364	977	3328	3.01	0.60	1.80	20.84	5.35	6.54	0.00	0.00	0.00	3.47	4.87	0.00	17.90	61.10	17.11	127.54	141.88	835	525	0.10	0.63	14.34	10.11%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.40	43.26								0.00	5.35	125.64	41.46							
	Ex2	103	102	16.42	16.42	573	3337	0.00	0	564	0.00	0	0	179	573	3901	2.98	0.60	1.79	24.21	0.00	6.54	0.00	0.00	0.00	3.47	4.87	5.11	21.53	82.63	23.14	136.55	141.88	1100	525	0.10	0.63	5.33	3.76%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.38	42.87								0.00	0.00	125.64	41.46							
SPRATT SOUTH	2c - 2c(i) - 2c(ii)	114	113	20.32	18.37	905	905	1.95	125	125	0.00	0	0	335	1030	1030	3.79	0.80	3.03	10.12	0.00	0.00	0.00	0.00	7.68	7.68	3.73	5.93	33.94	33.94	11.20	25.05	98.65	695	450	0.11	0.601	73.59	74.60%
SPRATT SOUTH	2d - 2d(i)	113	112	31.65	21.26	1048	1953	10.40	665	790	0.00	0	0	604	1713	2743	3.48	0.80	2.78	24.71	0.00	0.00	0.00	0.00	14.95	22.63	11.00	5.45	52.06	85.99	28.38	64.09	148.80	1155	525	0.11	0.666	84.71	56.93%
SPRATT SOUTH	2e	112	111-a	17.48	0.00	0	1953	13.28	847	1637	4.19	479	479	605	1326	4069	3.33	0.80	2.66	35.09	2.55	2.55	0.00	0.00	0.00	22.63	12.24	6.14	26.17	112.16	37.01	84.34	155.42	470	525	0.12	0.696	71.08	45.73%
SPRATT SOUTH	---	111-a	111	0.00	0.00	0	1953	0.00	0	1637	0.00	0	479	0	0	4069	3.33	0.80	2.66	35.09	0.00	2.55	0.00	0.00	0.00	22.63	12.24	0.00	0.00	112.16	37.01	84.34	148.80	215	525	0.11	0.666	64.46	43.32%
SPRATT SOUTH	Ex4	111	110	14.93	13.31	90	2043	1.62	468	2105	0.00	0	479	223	558	4627	3.28	0.80	2.62	39.30	0.91	3.46	0.00	0.00	0.00	22.63	12.68	0.00	15.84	128.00	42.24	94.22	155.42	600	525	0.12	0.696	61.20	39.38%
SHORELINE DRIVE	3b	117	116	48.13	43.40	2138	2138	4.73	302	302	0.00	0	0	794	2440	2440	3.52	0.80	2.81	22.25	0.66	0.66	0.00	0.00	0.05	0.05	0.34	2.77	51.60	51.60	17.03	39.62	98.65	1270	450	0.11	0.601	59.03	59.84%
SHORELINE DRIVE	3c	116	115	47.51	27.40	1350	3488	15.47	989	1291	4.64	530	530	1113	2869	5309	3.22	0.80	2.58	44.33	0.00	0.66	0.00	0.00	11.13	11.17	5.75	10.02	68.67	120.26	39.69	89.77	122.63	990	450	0.17	0.747	32.87	26.80%
SHORELINE DRIVE	Ex5	115	110	20.60	14.47	480	3968	6.13	302	1593	0.00	0	530	276	782	6091	3.16	0.80	2.53	49.97	0.80	1.46	0.00	0.00	3.16	14.33	7.67	0.00	24.56	144.82	47.79	105.44	133.02	480	450	0.20	0.810	27.58	20.73%
SPRATT SOUTH	Ex6	110	109	25.47	20.32	822	6833	5.15	288	3986	0.00	0	1009	377	1110	11828	2.88	0.80	2.31	88.37	0.00	4.92	0.00	0.00	2.39	39.36	21.52	0.00	27.86	300.68	99.22	209.12	303.78	675	675	0.12	0.822	94.66	31.16%
CANYON WALK DRIVE	3d	121	120	46.05	35.39	1744	1744	10.66	679	679	0.00	0	0	828	2423	2423	3.52	0.80	2.82	22.11	0.60	0.60	0.00	0.00	3.72	3.72	2.10	5.41	55.78	55.78	18.41	42.62	115.20	820	450	0.15	0.702	72.58	63.01%
CANYON WALK DRIVE	3e	120	119	54.06	40.27	1984	3728	13.79	881	1560	0.00	0	0	987	2865	5288	3.22	0.80	2.58	44.18	0.00	0.60	0.00	0.00	3.91	7.63	4.00	9.21	67.19	122.97	40.58	88.76	190.35	925	525	0.18	0.852	101.59	53.37%
CANYON WALK DRIVE	3f-4a	119	118	17.44	0.00	0	3728	3.06	194	1754	14.38	1007	1007	577	1201	6489	3.14	0.80	2.51	52.80	6.01	6.61	0.00	0.00	5.28	12.92	9.49	16.75	45.49	168.46	55.59	117.88	195.57	880	525	0.19	0.875	77.69	39.73%
INTERNAL SOUTH	6a	123	122	49.84	31.53	1555	1555	18.31	1169	1169	0.00	0	0	973	2724	2724	3.48	0.80	2.78	24.56	1.18	1.18	0.00	0.00	5.33	5.33	3.17	6.44	62.80	62.80	20.72	48.45	167.87	600	525	0.14	0.751	119.42	71.14%
ARMSTRONG ROAD	4b	122	118	58.24	0.00	0	1555	0.00	0	1169	58.24	4070	4070	2005	4070	6794	3.12	0.80	2.50	54.94	24.34	25.53	0.00	0.00	0.00	5.33	15.00	24.91	107.49	170.29	56.20	126.13	230.96	1810	600	0.13	0.791	104.82	45.39%
CANYON WALK DRIVE	Ex1	118	124	45.64	22.12	896	6179	23.52	1687	4610	0.00	0	5077	983	2583	15866	2.75	0.80	2.20	113.27	1.55	33.69	0.00	0.00	0.00	18.25	25.24	0.00	47.19	385.94	127.36	265.87	449.81	860	750	0.15	0.986	183.94	40.89%
SPRATT ROAD	5c	130	129	25.52	20.06	989	989	5.46	348	348	0.00	0	0	454	1337	1337	3.72	0.80	2.97	12.88	0.00	0.00	0.00	0.00	2.38	2.38	1.16	4.86	32.77	32.77	10.81	24.85	248.09	420	600	0.15	0.850	223.24	89.98%
SPRATT ROAD	1a	129	128	10.26	7.00	346	1335	3.26	209	557	0.00	0	0	195	555	1892	3.60	0.80	2.88	17.68	0.00	0.00	0.00	0.00	0.00	2.38	1.16	7.76	18.02	50.79	16.76	35.60	339.63	450	675	0.15	0.919	304.04	89.52%
SPRATT ROAD	1b	128	127	18.80	4.11	202	1537	13.56	866	1423	1.13	129	129	492	1197	3089	3.43	0.80	2.75	27.48	0.00	0.00	0.00	0.00	2.82	5.20	2.53	5.34	26.97	77.76	25.66	55.67	339.63	490	675	0.15	0.919	283.96	83.61%
INTERNAL NORTH	5b	135	134	17.31	10.06	496	496	7.25	463	463	0.00	0	0	348	959	959	3.81	0.80	3.05	9.48	0.00	0.00	0.00	0.00	0.03	0.03	0.02	1.32	18.66	18.66	6.16	15.65	70.84	385	375	0.15	0.621	55.19	77.91%
INTERNAL NORTH	1d	134	127	21.95	12.43	611	1107	9.52	607	1070	0.00	0	0	444	1218	2177	3.56	0.80	2.85	20.08	2.66	2.66	0.00	0.00	0.01	0.04	1.31	4.33	28.95	47.61	15.71	37.10	70.84	550	375	0.15	0.621	33.75	47.64%
	BP-1	137	127	39.70	20.70	1173	1173	17.00	1019	1019	2.00	398	398	891	2590	2590	3.50	0.80	2.80	23.47	0.00	0.00	16.18	16.18	0.00	0.00	5.24	6.81	62.69	62.69	20.69	49.40	70.84	725	375	0.15	0.621	21.44	30.26%
SPRATT ROAD	1c	127	126	14.01	0.00	0	3817	8.98	574	4086	5.03	574	1101	541	1148	9004	3.00	0.80	2.40	70.03	0.74	3.40	0.00	16.18	6.60	11.84	12.65	6.42	27.77	215.82	71.22	153.89	449.81	795	750	0.15	0.986	295.92	65.79%
INTERNAL NORTH	5a	133	132	11.48	4.65	230	230	6.83	437	437	0.00	0	0	254	667	667	3.91	0.80	3.13	6.76	1.02	1.02	0.00	0.00	1.15	1.15	1.06	4.02	17.68	17.68	5.83	13.65	70.84	410	375	0.15	0.621	57.20	80.74%
INTERNAL NORTH	1e	132	126	34.06	22.08	1088	1318	11.98	766	1203	0.00	0	0	659	1854	2521	3.51	0.80	2.80	22.91	0.00	1.02	0.00	0.00	1.37	2.52	1.72	6.18	41.61	59.29	19.57	44.20	115.20	810	450	0.15	0.702	71.00	61.63%
	BP-2	138	126	0.11	0.00	0	0	0.11	7	7	0.00	0	0	3	7	7	4.00	0.80	3.20	0.07	0.00	0.00	15.00	15.00	0.00	0.00	4.86	1.48	16.59	16.59	5.48	10.41	70.84	440	375	0.15	0.621	60.43	85.31%
SPRATT ROAD	1g	126	125	14.19	1.66	83	5218	9.47	605	5901	3.05	348	1449	461	1036	12568	2.86	0.80	2.28	93.04	0.98	5.40	0.00	31.18	10.12	24.48	24.62	3.45	28.74	320.44	105.75	223.41	478.86	710	750	0.17	1.050	255.45	53.35%
SPRATT ROAD	1f	131	125	9.29	5.05	250	250	4.24	271	271	0.00	0	0	191	521	521	3.96	0.80	3.17	5.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.48	12.77	12.77	4.21	9.57	45.12	420	300	0.20	0.618	35.54	78.79%
	BP3	136	125	0.00	0.00	0	0	0.00	0	0	0.00	0	0	0	0	0	4.00	0.80	3.20	0.00	0.00	0.00	38.46	38.46	0.00	0.00	12.46	5.69	44.15	44.15	14.57	27.03	68.44	986	375	0.14	0.600	41.41	60.51%
SPRATT ROAD	1h	125	124	1.69	0.00	0	5468	1.69	108	6280	0.00	0	1449	45	108	13197	2.83	0.80	2.27	96.97	2.20	7.60	0.00	69.64	1.66	26.14	38.96	3.04	8.59	385.95	127.36	263.30	731.45	830	900	0.15	1.114	468.15	64.00%
SPRATT ROAD	Ex7	124	109	17.26	11.40	768	12415	3.00	250	11140	2.86	327	6853	516	1345	30408	2.47	0.80	1.98	194.84	0.64	41.93	0.00	69.64	0.00	44.39	64.51	0.00	17.90	789.79	260.63	519.98	1,103.33	515	1050	0.15	1.234	583.35	52.87%
CANYON WALK DRIVE	Ex8	109	102	56.40	54.40	2150	21398	2.00	134	15260	0.00	0	7862	728	2284	44520	2.31	0.80	1.85	266.83	0.00	46.85	0.00	69.64	0.00	83.75	86.03	5.45	61.85	1152.32	380.26	733.13	1,103.33	1100	1050	0.15	1.234	370.20	33.55%
SPRATT ROAD	BP-4	139	102	0.00	0.00	0	0	0.00	0	0	0.00	0	0	0	0	0	4.00	0.80	3.20	0.00	0.00	0.00	127.52	127.52	0.00	0.00	95.03	19.76	147.28	147.28	48.60	143.63	339.63	2790	675	0.15	0.919	196.00	57.71%
CROSSING	---	102	101	0.00			3337			564			0	0	0	3901	2.23	0.60	1.34	18.15	0.00	53.39	0.00	197.16	0.00	87.21	215.26	0.00	0.00	82.63	23.14	1016.86	1,348.97	145	1200	0.11	1.155	332.11	24.62%
							25101			17108			7862		0	50071		0.80	1.79	289.98								0.00	0.00	1425.24	470.33							

Design Parameters:

Residential			ICI Areas			
						Peak Factor
SF	3.2	p/p/u				
TH/SD	2.4	p/p/u	COM	0.324	L/s/Ha	1.5
APT	1.9	p/p/u	EMP	0.324	L/s/Ha	1
			INST	0.324	L/s/Ha	1.5

Notes:

1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 300 L/day
3. Infiltration allowance: 0.33 L/s/Ha 0.28 L/s/Ha
4. Residential Peaking Factor: K = 0.80 K = 0.60
   Harmon Formula = 1+(14/(4+P^0.5))
   where P = population in thousands
5. Existing Sanitary Sewer Lines

Designed: MB

Checked: MB

Dwg. Reference:

No.	Revision	Date
1a.	- Manual build of Stantec's *Riverside South Community Infrastructure Servicing Study* , dated June 5, 2017	2017-06-29
1b.	- New Sanitary parameters *(see Note 1)* and adjustments to Areas 2a, 2c, 2d	2017-06-29
1c.	- Correction Factor of K=0.6 & 0.28 L/s / 300L/day *(see Note 2)*	2017-06-29
1d.	- Increase in Area 2a split 50/50 between Low density and Medium Density *(see Note 3)*	2017-06-29

File Reference: 38269-5.7.1 **Date:** 2017-05-09 **Sheet No:** 1 of 1

NOTE 1: Spreadsheet is Stantec's original, but using proposed revisions to design guidelines
- Res. per capita = 280 L/d
- Commercial = 28,000 L/d/ha (0.324 L/s/ha)
- Instutional = 28,000 L/d/ha (0.324 L/s/ha)
- ~~Industrial = 35,000 L/d/ha~~
- Infiltration = 0.33 L/s/ha
- Peaking Factor correction, K = 0.80
- ICI Peaking Factor = 1.5 (>20% contributing area)

NOTE 2: MH106 to MH103, MH103 to MH102 and Area 2b *(Existing (Phase 9))* flows calculated using monitored parameters from design guidelines
- Res. per capita = 300 L/d
- Infiltration = 0.28 L/s/ha
- Peaking Factor correction, K = 0.60

NOTE 3:

Additions to Area 2a (50% Low Density / 50% Medium Density)					
Area			Low Density		Medium Density
2d(i)	**7.63**	ha	15.40	units / ha	27.0 units / ha
2c(i)	**25.20**	ha	15.40	units / ha	27.0 units / ha
2c(ii)	**8.27**	ha	15.40	units / ha	27.0 units / ha

Lance Erion

From: Bob Wingate <rwingate@IBIGroup.com>
Sent: Thursday, January 25, 2018 10:40 PM
To: Sevigny, John
Cc: Terry Brule; Oram, Cody; Bougadis, John
Subject: Re: Pond 5 Tributary Area sanitary drainage areas
Attachments: CCS_38269_sanitary_SPRATT_2017-11-23 (Revision 1e).pdf; FIGURE A-3_2017-11-22.pdf

Thanks for confirming this John.

Sent from my BlackBerry 10 smartphone on the Bell network.

From: Sevigny, John
Sent: Thursday, January 25, 2018 9:14 AM
To: Bob Wingate
Cc: Terry Brule; Oram, Cody; Bougadis, John
Subject: RE: Pond 5 Tributary Area sanitary drainage areas

Hi Bob.
Further to our meeting yesterday – The City concurs with the proposed changes to the drainage areas and the use of the soon to be released (hopefully) wastewater drainage parameters.
Regards,

John Sevigny, C.E.T.
Project Manager, Infrastructure Approvals
Development Review, Suburban Services | *Examen des projets d'aménagement, Services suburbains*
Planning, Infrastructure and Economic Development Department | Services de la planification, de l'infrastructure et du développement économique
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West. Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste **14388**, fax/téléc:613-580-2576, john.sevigny@ottawa.ca

From: Bob Wingate [mailto:rwingate@IBIGroup.com]
Sent: Wednesday, December 06, 2017 2:59 PM
To: Sevigny, John <John.Sevigny@ottawa.ca>
Cc: Terry Brule <tbrule@IBIGroup.com>; Oram, Cody <Cody.Oram@ottawa.ca>; Bougadis, John <John.Bougadis@ottawa.ca>
Subject: Re: Pond 5 Tributary Area sanitary drainage areas

Hi John
The spread sheet attached with the plan submitted to you is our exact remake of the Stantec ISSU spread sheet for the entire Riverside South drainage area with the proposed drainage area adjustments incorporated in to it. So this spread sheet assesses the impact of the changes on the overall sanitary system.
If you have any questions or need another copy of our spread sheet let us know.
Regards
Bob

Sent from my BlackBerry 10 smartphone on the Bell network.

From: Sevigny, John

Sent: Wednesday, December 6, 2017 9:42 AM
To: Bob Wingate
Cc: Terry Brule; Oram, Cody; Bougadis, John
Subject: RE: Pond 5 Tributary Area sanitary drainage areas

Hi Bob,
Can you confirm if you looked at the impact of the downstream sewers (i.e. beyond the drainage areas shown in the drainage area map)? If not, can you please provide a comparison of the ISSU flows at the trunk outlets to the revised flows that IBI is recommending?
Regards,

John Sevigny, C.E.T.
Project Manager, Infrastructure Approvals
Development Review, Suburban Services | *Examen des projets d'aménagement, Services suburbains*
Planning, Infrastructure and Economic Development Department | Services de la planification, de l'infrastructure et du développement économique
City of Ottawa | Ville d'Ottawa
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613.580.2424 ext./poste **14388**, fax/téléc:613-580-2576, john.sevigny@ottawa.ca

From: Bob Wingate [mailto:rwingate@IBIGroup.com]
Sent: Friday, November 24, 2017 11:26 AM
To: Sevigny, John <John.Sevigny@ottawa.ca>
Cc: Terry Brule <tbrule@IBIGroup.com>; Marcel Denomme (mdenomme@urbandale.com) <mdenomme@urbandale.com>; Jim Burghout (jim.burghout@claridgehomes.com) <jim.burghout@claridgehomes.com>
Subject: Re: Pond 5 Tributary Area sanitary drainage areas

Thanks John
If you have any questions feel free to contact me directly.

Sent from my BlackBerry 10 smartphone on the Bell network.

From: Sevigny, John
Sent: Friday, November 24, 2017 11:09 AM
To: Bob Wingate
Cc: Terry Brule; Marcel Denomme (mdenomme@urbandale.com); Jim Burghout (jim.burghout@claridgehomes.com)
Subject: RE: Pond 5 Tributary Area sanitary drainage areas

Hi Bob. We'll look into it and get back to you.

John Sevigny, C.E.T.
Project Manager, Infrastructure Approvals
Development Review, Suburban Services | *Examen des projets d'aménagement, Services suburbains*
Planning, Infrastructure and Economic Development Department | Services de la planification, de l'infrastructure et du développement économique
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613.580.2424 ext./poste **14388**, fax/téléc:613-580-2576, john.sevigny@ottawa.ca

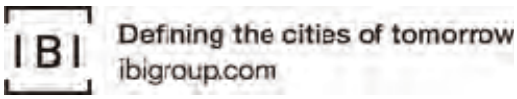
From: Bob Wingate [mailto:rwingate@IBIGroup.com]
Sent: Thursday, November 23, 2017 12:01 PM
To: Sevigny, John <John.Sevigny@ottawa.ca>
Cc: Terry Brule <tbrule@IBIGroup.com>; Marcel Denomme (mdenomme@urbandale.com) <mdenomme@urbandale.com>; Jim Burghout (jim.burghout@claridgehomes.com)

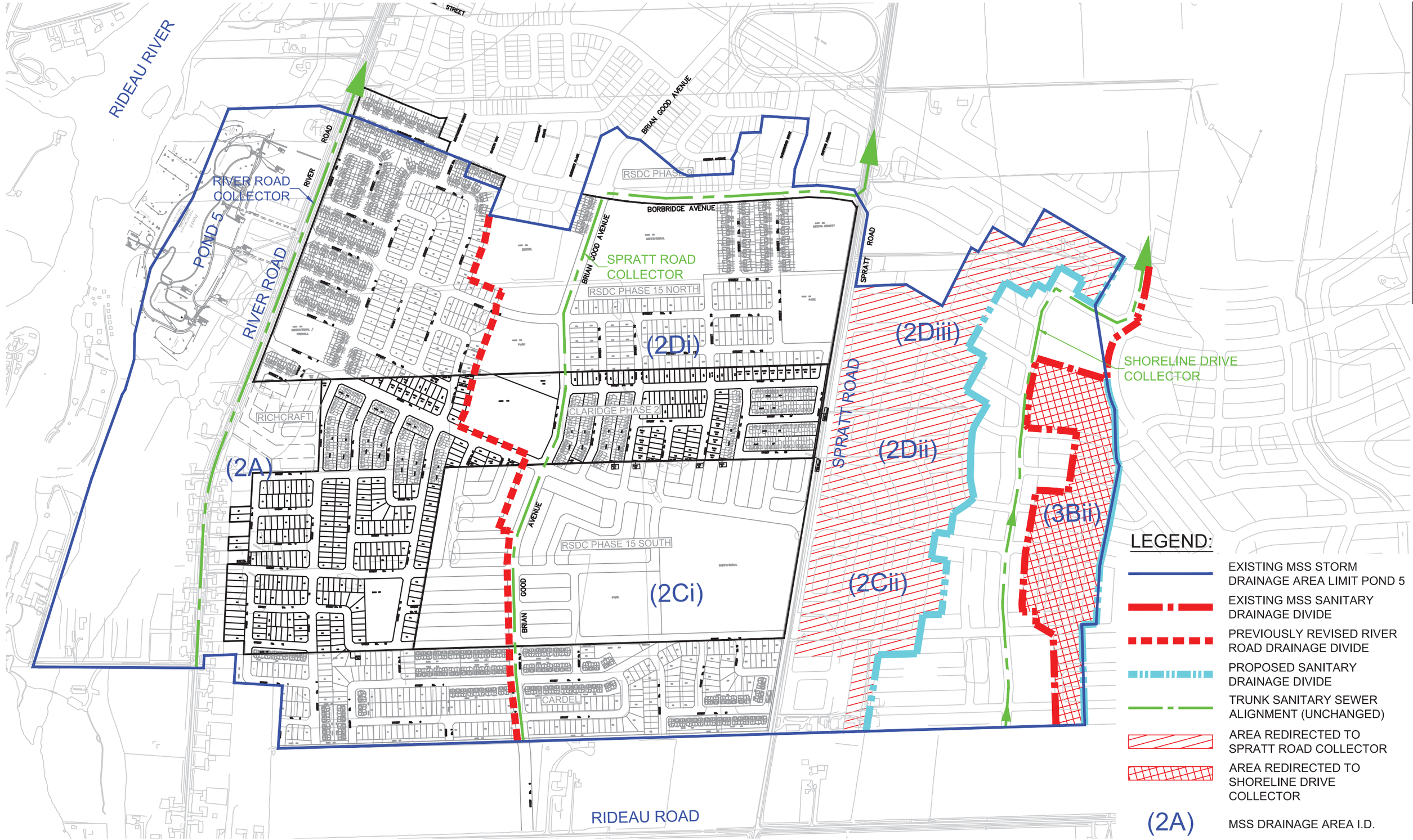
<jim.burghout@claridgehomes.com>
Subject: Pond 5 Tributary Area sanitary drainage areas

Hi John
Further to our previous request to revise the sanitary drainage area for the River Road Collector Sewer across the Pond 5 drainage area , we have subsequently extended that analysis to include the Spratt Road Collector and the Shoreline Road collector across the pond 5 drainage area. In doing so we have recognized the potential to significantly increase the amount of parallel sewers (sanitary and storm sewers) in the local sewer systems tributary to these trunks . Incorporating the drainage area changes proposed in the attached figure will significantly reduce the potential for sewer conflicts , will minimize the depth of the sewer system by following the natural topography more closely , will facilitate orderly phasing of the overall development of the pond 5 tributary area , and will adjust the disbursement of the sanitary flow within the Riverside South trunk system to increase flexibility in this system to accommodate any increase in density in the Town Centre Area which may be proposed to help support the proposed extension of the LRT network to Riverside South in advance of the build out of this overall development area .
The attached figure illustrates the recommended adjustments to the local drainage areas . The sanitary sewer design sheet which reflects all the proposed adjustments is also attached to demonstrate that the changes do not negatively impact the overall sanitary sewer system . It should be noted that this spread sheet is a replication of the MSS design sheet and incorporates the revised design criteria identified in the Deviation Report submitted previously , and approved by the City . It should also be noted that the attached figure and spread sheet incorporate the previously requested drainage area shift for the River Road trunk sewer .
We would appreciate your acknowledgement that the City is in agreement with these proposed adjustments to the sanitary drainage areas as we are moving forward with the design of the trunk servicing for the pond 5 area in anticipation of the approval of the pond 5 design and the developers desire to advance this development .
If you have any questions or require any further clarification of this request please do not hesitate to contact me directly.
Regards

Bob Wingate

IBI GROUP
400-333 Preston Street
Ottawa ON K1S 5N4 Canada
tel +1 613 225 1311 fax +1 613 225 9868





J:\38269-RiversideSthPh15\5.9 Drawings\59civil\current\Deviation Report figures\FIGURE A-3.dwg Layout Name: FIGURE S-1 Plot Scale: 1:5.13 Plotted At: 11/22/2017 Last Saved By: Chris.Cormier Last Saved

IBI

Scale: N.T.S.

Project Title: RIVERSIDE SOUTH RIDEAU RIVER POND 5 DRAINAGE AREA

Drawing Title: ALTERNATIVE SANITARY DRAINAGE LIMIT SPRATT ROAD COLLECTOR AND SHORELINE DRIVE COLLECTOR

Sheet No.: FIGURE A-3

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REVISED RIVER ROAD AND SPRATT ROAD COLLECTOR ANALYSIS

- EXISTING DEVELOPMENT USING MONITORED PARAMETERES FROM DESIGN GUIDELINES
- NEW DEVELOPMENT USING PROPOSED REVISIONS TO DESIGN GUIDELINES
- SPRATT ROAD DRAINAGE LIMITS REVISED

SANITARY SEWER DESIGN SHEET

38269 - Riverside South Community Infrastructure Servicing Study
CITY OF OTTAWA

LOCATION				RESIDENTIAL																ICI AREAS							INFILTRATION ALLOWANCE				TOTAL FLOW	PROPOSED SEWER DESIGN							
				TOTAL AREA (Ha)	LOW DENSITY			MED DENSITY			HIGH DENSITY			TOTAL UNITS	POPULATION		PEAKING FACTOR			PEAK FLOW (L/s)	AREA (Ha)						PEAK FLOW (L/s)	ROAD AREA (Ha)	AREA (Ha)		FLOW (L/s)		CAPACITY (L/s)	LENGTH (m)	DIA (mm)	SLOPE (%)	VELOCITY (full) (m/s)	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH		AREA (Ha)	POP	CUM POP	AREA (Ha)	POP	CUM POP	AREA (Ha)	POP	CUM POP		IND	CUM	STANDARD PF	CORRECTED K	CORRECTED PF		COMMERCIAL IND	COMMERCIAL CUM	EMPLOYMENT IND	EMPLOYMENT CUM	INSTITUTIONAL IND	INSTITUTIONAL CUM			IND	CUM							L/s	(%)
RIVER ROAD	2a + 2c(i) + 2c(ii) + 2d(i)	108	107	91.61	64.95	3202	3202	26.66	1721	1721	0.00	0	0	1718	4922	4922	3.25	0.80	2.60	41.49	1.19	1.19	0.00	0.00	1.01	1.01	1.07	4.48	98.28	98.28	32.43	74.99	103.03	1255	450	0.12	0.63	28.04	27.21%
RIVER ROAD	---	107	107a	0.00	0.00	0	0	0.00	0	0	0.00	0	0	0	0	0	3.20	0.60	1.92	0.00	0.00	1.19	0.00	0.00	0.00	1.01	1.07	0.00	0.00	0.00	0.00	84.50	155.42	254	525	0.12	0.70	70.92	45.63%
	2b FUTURE			12.21	10.22	502	3704	1.99	127	1848	0.00	0	0	0	629	5551		0.80	2.56	46.09								2.64	14.85	113.13	37.33							
RIVER ROAD	2b Existing (Phase 9)	107a	107b	43.20	43.20	2351	2351	0.00	0	0	0.00	0	0	N/A	2351	2351	3.06	0.60	1.83	14.97	0.00	1.19	0.00	0.00	2.46	3.47	2.27	0.00	43.20	43.20	12.10	111.45	141.88	405	525	0.10	0.63	30.43	21.45%
	---			0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.44	43.98								0.00	2.46	115.59	38.15							
RIVER ROAD	---	107b	107c	0.00	0.00	0	2351	0.00	0	0	0.00	0	0	0	0	2351	3.06	0.60	1.83	14.97	0.00	1.19	0.00	0.00	0.00	3.47	2.27	0.00	0.00	43.20	12.10	111.45	173.76	217	525	0.15	0.78	62.32	35.86%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.44	43.98								0.00	0.00	115.59	38.15							
	---	107c	107d	0.00	0.00	0	2351	0.00	0	0	0.00	0	0	0	0	2351	3.06	0.60	1.83	14.97	0.00	1.19	0.00	0.00	0.00	3.47	2.27	0.00	0.00	43.20	12.10	113.00	141.88	107	525	0.10	0.63	28.88	20.36%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.44	43.98								4.70	4.70	120.29	39.70							
	---	107d	106	0.00	0.00	0	2351	0.00	0	0	0.00	0	0	0	0	2351	3.06	0.60	1.83	14.97	0.00	1.19	0.00	0.00	0.00	3.47	2.27	0.00	0.00	43.20	12.10	113.00	126.90	278	525	0.08	0.57	13.90	10.95%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.44	43.98								0.00	0.00	120.29	39.70							
	Ex3	106	103	17.90	10.04	413	2764	7.86	564	564	0.00	0	0	364	977	3328	3.01	0.60	1.80	20.84	5.35	6.54	0.00	0.00	0.00	3.47	4.87	0.00	17.90	61.10	17.11	127.54	141.88	835	525	0.10	0.63	14.34	10.11%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.40	43.26								0.00	5.35	125.64	41.46							
	Ex2	103	102	16.42	16.42	573	3337	0.00	0	564	0.00	0	0	179	573	3901	2.98	0.60	1.79	24.21	0.00	6.54	0.00	0.00	0.00	3.47	4.87	5.11	21.53	82.63	23.14	136.55	141.88	1100	525	0.10	0.63	5.33	3.76%
				0.00	0.00	0	3704	0.00	0	1848	0.00	0	0	0	0	5551		0.80	2.38	42.87								0.00	0.00	125.64	41.46							
SPRATT SOUTH	**2c - 2c(i) - 2c(ii) + 2c(iii)**	**114**	**113**	**29.63**	**23.03**	**1134**	**1134**	**6.61**	**427**	**427**	**0.00**	**0**	**0**	**532**	**1561**	**1561**	**3.67**	**0.80**	**2.93**	**14.84**	**0.00**	**0.00**	**0.00**	**0.00**	**7.68**	**7.68**	**3.73**	**5.93**	**43.25**	**43.25**	**14.27**	**32.84**	**98.65**	**695**	**450**	**0.11**	**0.601**	**65.81**	**66.71%**
SPRATT SOUTH	**2d - 2d(i) + 2d(ii) + 2d(iii)**	**113**	**112**	**52.21**	**31.54**	**1555**	**2689**	**20.68**	**1331**	**1758**	**0.00**	**0**	**0**	**1041**	**2886**	**4446**	**3.29**	**0.80**	**2.63**	**37.95**	**0.00**	**0.00**	**0.00**	**0.00**	**14.95**	**22.63**	**11.00**	**5.45**	**72.62**	**115.86**	**38.23**	**87.18**	**148.80**	**1155**	**525**	**0.11**	**0.666**	**61.62**	**41.41%**
SPRATT SOUTH	2e	112	111-a	17.48	0.00	0	2689	13.28	847	2605	4.19	479	479	605	1326	5772	3.19	0.80	2.55	47.69	2.55	2.55	0.00	0.00	0.00	22.63	12.24	6.14	26.17	142.03	46.87	106.80	155.42	470	525	0.12	0.696	48.62	31.28%
SPRATT SOUTH	---	111-a	111	0.00	0.00	0	2689	0.00	0	2605	0.00	0	479	0	0	5772	3.19	0.80	2.55	47.69	0.00	2.55	0.00	0.00	0.00	22.63	12.24	0.00	0.00	142.03	46.87	106.80	148.80	215	525	0.11	0.666	42.00	28.23%
SPRATT SOUTH	Ex4	111	110	14.93	13.31	90	2779	1.62	468	3073	0.00	0	479	223	558	6330	3.15	0.80	2.52	51.67	0.91	3.46	0.00	0.00	0.00	22.63	12.68	0.00	15.84	157.87	52.10	116.45	155.42	600	525	0.12	0.696	38.97	25.07%
SHORELINE DRIVE	**3b - 2c(iii) - 2d(ii) - 2d(iii) + 3b(ii)**	**117**	**116**	**28.61**	**18.70**	**921**	**921**	**9.90**	**637**	**637**	**0.00**	**0**	**0**	**554**	**1558**	**1558**	**3.67**	**0.80**	**2.93**	**14.82**	**0.66**	**0.66**	**0.00**	**0.00**	**0.05**	**0.05**	**0.34**	**2.77**	**32.08**	**32.08**	**10.59**	**25.74**	**98.65**	**1270**	**450**	**0.11**	**0.601**	**72.90**	**73.90%**
SHORELINE DRIVE	3c	116	115	47.51	27.40	1350	2271	15.47	989	1626	4.64	530	530	1113	2869	4427	3.29	0.80	2.63	37.80	0.00	0.66	0.00	0.00	11.13	11.17	5.75	10.02	68.67	100.74	33.24	76.80	122.63	990	450	0.17	0.747	45.84	37.38%
SHORELINE DRIVE	Ex5	115	110	20.60	14.47	480	2751	6.13	302	1928	0.00	0	530	276	782	5209	3.23	0.80	2.58	43.60	0.80	1.46	0.00	0.00	3.16	14.33	7.67	0.00	24.56	125.30	41.35	92.63	133.02	480	450	0.20	0.810	40.39	30.36%
SPRATT SOUTH	Ex6	110	109	25.47	20.32	822	6352	5.15	288	5289	0.00	0	1009	377	1110	12650	2.85	0.80	2.28	93.56	0.00	4.92	0.00	0.00	2.39	39.36	21.52	0.00	27.86	311.03	102.64	217.72	303.78	675	675	0.12	0.822	86.06	28.33%
CANYON WALK DRIVE	3d - 3b(ii)	121	120	35.70	25.04	1234	1234	10.66	679	679	0.00	0	0	669	1913	1913	3.60	0.80	2.88	17.86	0.60	0.60	0.00	0.00	3.72	3.72	2.10	5.41	45.43	45.43	14.99	34.95	115.20	820	450	0.15	0.702	80.25	69.66%
CANYON WALK DRIVE	3e	120	119	54.06	40.27	1984	3218	13.79	881	1560	0.00	0	0	987	2865	4778	3.26	0.80	2.61	40.42	0.00	0.60	0.00	0.00	3.91	7.63	4.00	9.21	67.19	112.62	37.16	81.59	190.35	925	525	0.18	0.852	108.76	57.14%
CANYON WALK DRIVE	3f-4a	119	118	17.44	0.00	0	3218	3.06	194	1754	14.38	1007	1007	577	1201	5979	3.17	0.80	2.54	49.17	6.01	6.61	0.00	0.00	5.28	12.92	9.49	16.75	45.49	158.11	52.18	110.84	195.57	880	525	0.19	0.875	84.73	43.33%
INTERNAL SOUTH	6a	123	122	49.84	31.53	1555	1555	18.31	1169	1169	0.00	0	0	973	2724	2724	3.48	0.80	2.78	24.56	1.18	1.18	0.00	0.00	5.33	5.33	3.17	6.44	62.80	62.80	20.72	48.45	167.87	600	525	0.14	0.751	119.42	71.14%
ARMSTRONG ROAD	4b	122	118	58.24	0.00	0	1555	0.00	0	1169	58.24	4070	4070	2005	4070	6794	3.12	0.80	2.50	54.94	24.34	25.53	0.00	0.00	0.00	5.33	15.00	24.91	107.49	170.29	56.20	126.13	230.96	1810	600	0.13	0.791	104.82	45.39%
CANYON WALK DRIVE	Ex1	118	124	45.64	22.12	896	5669	23.52	1687	4610	0.00	0	5077	983	2583	15356	2.77	0.80	2.21	110.20	1.55	33.69	0.00	0.00	0.00	18.25	25.24	0.00	47.19	375.59	123.94	259.38	449.81	860	750	0.15	0.986	190.43	42.34%
SPRATT ROAD	5c	130	129	25.52	20.06	989	989	5.46	348	348	0.00	0	0	454	1337	1337	3.72	0.80	2.97	12.88	0.00	0.00	0.00	0.00	2.38	2.38	1.16	4.86	32.77	32.77	10.81	24.85	248.09	420	600	0.15	0.850	223.24	89.98%
SPRATT ROAD	1a	129	128	10.26	7.00	346	1335	3.26	209	557	0.00	0	0	195	555	1892	3.60	0.80	2.88	17.68	0.00	0.00	0.00	0.00	0.00	2.38	1.16	7.76	18.02	50.79	16.76	35.60	339.63	450	675	0.15	0.919	304.04	89.52%
SPRATT ROAD	1b	128	127	18.80	4.11	202	1537	13.56	866	1423	1.13	129	129	492	1197	3089	3.43	0.80	2.75	27.48	0.00	0.00	0.00	0.00	2.82	5.20	2.53	5.34	26.97	77.76	25.66	55.67	339.63	490	675	0.15	0.919	283.96	83.61%
INTERNAL NORTH	5b	135	134	17.31	10.06	496	496	7.25	463	463	0.00	0	0	348	959	959	3.81	0.80	3.05	9.48	0.00	0.00	0.00	0.00	0.03	0.03	0.02	1.32	18.66	18.66	6.16	15.65	70.84	385	375	0.15	0.621	55.19	77.91%
INTERNAL NORTH	1d	134	127	21.95	12.43	611	1107	9.52	607	1070	0.00	0	0	444	1218	2177	3.56	0.80	2.85	20.08	2.66	2.66	0.00	0.00	0.01	0.04	1.31	4.33	28.95	47.61	15.71	37.10	70.84	550	375	0.15	0.621	33.75	47.64%
	BP-1	137	127	39.70	20.70	1173	1173	17.00	1019	1019	2.00	398	398	891	2590	2590	3.50	0.80	2.80	23.47	0.00	0.00	16.18	16.18	0.00	0.00	5.24	6.81	62.69	62.69	20.69	49.40	70.84	725	375	0.15	0.621	21.44	30.26%
SPRATT ROAD	1c	127	126	14.01	0.00	0	3817	8.98	574	4086	5.03	574	1101	541	1148	9004	3.00	0.80	2.40	70.03	0.74	3.40	0.00	16.18	6.60	11.84	12.65	6.42	27.77	215.82	71.22	153.89	449.81	795	750	0.15	0.986	295.92	65.79%
INTERNAL NORTH	5a	133	132	11.48	4.65	230	230	6.83	437	437	0.00	0	0	254	667	667	3.91	0.80	3.13	6.76	1.02	1.02	0.00	0.00	1.15	1.15	1.06	4.02	17.68	17.68	5.83	13.65	70.84	410	375	0.15	0.621	57.20	80.74%
INTERNAL NORTH	1e	132	126	34.06	22.08	1088	1318	11.98	766	1203	0.00	0	0	659	1854	2521	3.51	0.80	2.80	22.91	0.00	1.02	0.00	0.00	1.37	2.52	1.72	6.18	41.61	59.29	19.57	44.20	115.20	810	450	0.15	0.702	71.00	61.63%
	BP-2	138	126	0.11	0.00	0	0	0.11	7	7	0.00	0	0	3	7	7	4.00	0.80	3.20	0.07	0.00	0.00	15.00	15.00	0.00	0.00	4.86	1.48	16.59	16.59	5.48	10.41	70.84	440	375	0.15	0.621	60.43	85.31%
SPRATT ROAD	1g	126	125	14.19	1.66	83	5218	9.47	605	5901	3.05	348	1449	461	1036	12568	2.86	0.80	2.28	93.04	0.98	5.40	0.00	31.18	10.12	24.48	24.62	3.45	28.74	320.44	105.75	223.41	478.86	710	750	0.17	1.050	255.45	53.35%
SPRATT ROAD	1f	131	125	9.29	5.05	250	250	4.24	271	271	0.00	0	0	191	521	521	3.96	0.80	3.17	5.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.48	12.77	12.77	4.21	9.57	45.12	420	300	0.20	0.618	35.54	78.79%
	BP3	136	125	0.00	0.00	0	0	0.00	0	0	0.00	0	0	0	0	0	4.00	0.80	3.20	0.00	0.00	0.00	38.46	38.46	0.00	0.00	12.46	5.69	44.15	44.15	14.57	27.03	68.44	986	375	0.14	0.600	41.41	60.51%
SPRATT ROAD	1h	125	124	1.69	0.00	0	5468	1.69	108	6280	0.00	0	1449	45	108	13197	2.83	0.80	2.27	96.97	2.20	7.60	0.00	69.64	1.66	26.14	38.96	3.04	8.59	385.95	127.36	263.30	731.45	830	900	0.15	1.114	468.15	64.00%
SPRATT ROAD	Ex7	124	109	17.26	11.40	768	11905	3.00	250	11140	2.86	327	6853	516	1345	29898	2.48	0.80	1.98	192.13	0.64	41.93	0.00	69.64	0.00	44.39	64.51	0.00	17.90	779.44	257.21	513.86	1,103.33	515	1050	0.15	1.234	589.48	53.43%
CANYON WALK DRIVE	Ex8	109	102	56.40	54.40	2150	20407	2.00	134	16563	0.00	0	7862	728	2284	44832	2.31	0.80	1.85	268.37	0.00	46.85	0.00	69.64	0.00	83.75	86.03	5.45	61.85	1152.32	380.26	734.67	1,103.33	1100	1050	0.15	1.234	368.67	33.41%
SPRATT ROAD	BP-4	139	102	0.00	0.00	0	0	0.00	0	0	0.00	0	0	0	0	0	4.00	0.80	3.20	0.00	0.00	0.00	127.52	127.52	0.00	0.00	95.03	19.76	147.28	147.28	48.60	143.63	339.63	2790	675	0.15	0.919	196.00	57.71%
CROSSING	---	102	101	0.00			3337			564			0	0	0	3901	2.23	0.60	1.34	18.14	0.00	53.39	0.00	197.16	0.00	87.21	215.26	0.00	0.00	82.63	23.14	1018.35	1,348.97	145	1200	0.11	1.155	330.62	24.51%
							24110			18411			7862		0	50383		0.80	1.79	291.49									0.00	1425.24	470.33							

Design Parameters:

Residential			ICI Areas			
						Peak Factor
SF	3.2	p/p/u	COM	0.324	L/s/Ha	1.5
TH/SD	2.4	p/p/u	EMP	0.324	L/s/Ha	1
APT	1.9	p/p/u	INST	0.324	L/s/Ha	1.5

Notes:

1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 300 L/day
3. Infiltration allowance: 0.33 L/s/Ha 0.28 L/s/Ha
4. Residential Peaking Factor: K = 0.80 K = 0.60
   Harmon Formula = 1+(14/(4+P^0.5))
   where P = population in thousands
5. Existing Sanitary Sewer Lines

Designed: MB

Checked: MB

Dwg. Reference:

No.	Revision	Date
1a.	- Manual build of Stantec's *Riverside South Community Infrastructure Servicing Study* , dated June 5, 2017	2017-05-30
1b.	- New Sanitary parameters *(see Note 1)* and adjustments to Areas 2a, 2c, 2d	2017-06-29
1c.	- Correction Factor of K=0.6 & 0.28 L/s / 300L/day *(see Note 2)*	2017-06-29
1d.	- Increase in Area 2a split 50/50 between Low density and Medium Density *(see Note 3)*	2017-06-29
1e.	- Increase in area 2Ci & 2Di *(see Note 4)*	2017-11-23

File Reference:	Date:	Sheet No:
38269-5.7.1	2017-05-09	1 of 1

NOTE 1: Spreadsheet is Stantec's original, but using proposed revisions to design guidelines
- Res. per capita = 280 L/d
- Commercial = 28,000 L/d/ha (0.324 L/s/ha)
- Instutional = 28,000 L/d/ha (0.324 L/s/ha)
- ~~Industrial = 35,000 L/d/ha~~
- Infiltration = 0.33 L/s/ha
- Peaking Factor correction, K = 0.80
- ICI Peaking Factor = 1.5 (>20% contributing area)

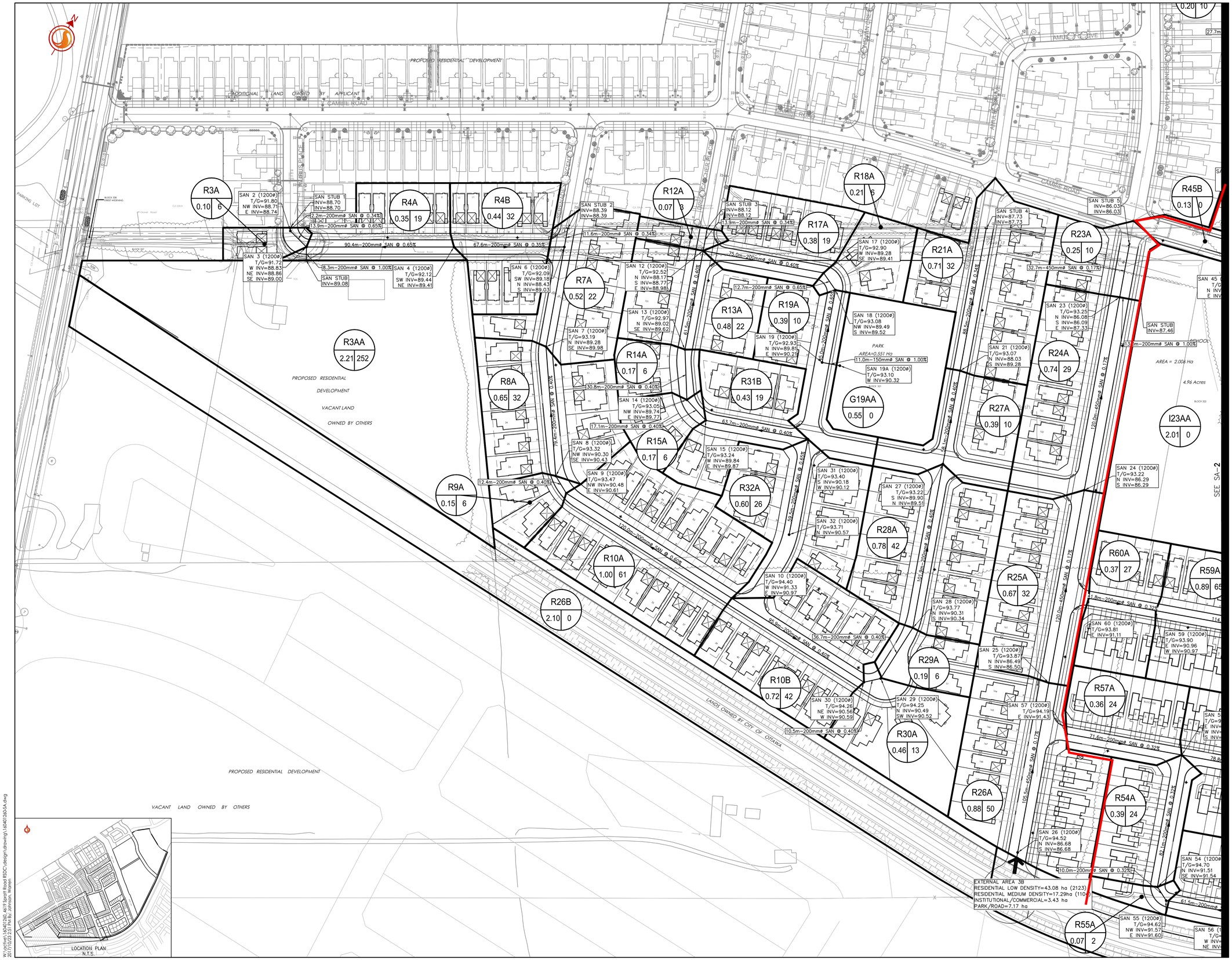
NOTE 2: MH106 to MH103, MH103 to MH102 and Area 2b *(Existing (Phase 9))* flows calculated using monitored parameters from design guidelines
- Res. per capita = 300 L/d
- Infiltration = 0.28 L/s/ha
- Peaking Factor correction, K = 0.60

NOTE 3:

Additions to Area 2a (50% Low Density / 50% Medium Density)						
	Area		Low Density		Medium Density	
2d(i)	**7.63**	ha	15.40	units / ha	27.0	units / ha
2c(i)	**25.20**	ha	15.40	units / ha	27.0	units / ha
2c(ii)	**8.27**	ha	15.40	units / ha	27.0	units / ha

NOTE 4:

Additions to Area 2Ci and 2Di (50% Low Density / 50% Medium Density)						
	Area		Low Density		Medium Density	
2d(ii)	**11.49**	ha	15.40	units / ha	27.0	units / ha
2d(iii)	**9.07**	ha	15.40	units / ha	27.0	units / ha
2c(iii)	**9.31**	ha	15.40	units / ha	27.0	units / ha
3b(ii)	**10.35**	ha	15.40	units / ha	27.0	units / ha



W:\active\160401260_4619 Spratt Road RSDC\design\drawing\160401260SA.dwg
2017/07/23 2:31 PM By: Johnson Warren

ORIGINAL SHEET - ARCH D

Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

SA24A / 0.38 | 34 — SANITARY DRAINAGE AREA ID# / POPULATION / SANITARY DRAINAGE AREA ha.
SANITARY DRAINAGE AREA
PROPOSED SANITARY SEWER
EXISTING SANITARY SEWER
FUTURE STUB

Notes

REVIEWED BY DEVELOPMENT REVIEW BRANCH
SIGNED
DATE 2017
PLAN NUMBER

8	ISSUED FOR CONSTRUCTION	WAJ	KS	17.10.19
7	REVISED GRADING	WAJ	AMP	17.08.30
6	REVISED DRAFT PLAN	WAJ	AMP	17.08.04
5	ISSUED FOR EARLY SERVICING	WAJ	AMP	17.07.28
4	ISSUED FOR MOE APPROVAL	WAJ	AMP	17.07.07
3	ISSUED FOR THIRD SUBMISSION	WAJ	AMP	17.06.02
2	REVISED AS PER CITY COMMENTS	WAJ	AMP	17.04.20
1	ISSUED FOR FIRST SUBMISSION	WAJ	AMP	17.02.21
Revision		By	Appd.	YY.MM.DD
File Name: 160401260-SA		WAJ Dwn.	SGG Chkd.	WAJ 16.09.26 Dsgn. YY.MM.DD

Permit-Seal

Client/Project

RIVERSIDE SOUTH DEVELOPMENT CORPORATION

RIVERSIDE SOUTH PHASE 13

OTTAWA, ON

Title

SANITARY DRAINAGE PLAN

Project No.	Scale	Revision
160401260	1:1000 (0, 10, 30, 50m)	8
Drawing No.	Sheet	
SA-1	58 of 60	

D07-16-13-0034

PLAN # 17379

LEGEND:

- PROPOSED SANITARY (IBI)
- PROPOSED SANITARY-SEPARATE APPLICATION(s)
- EXISTING SANITARY

RALPH HENNESSY AVE.

COMMERCIAL
AREA=0.929 Ha 2.30 Acres

Future School
AREA=3.07 Ha.
7.59 Acres

Medium Density
AREA=1.472 Ha
3.64 Acres

Park
AREA=2.124 Ha.
5.25 Acres

PARK
AREA=0.596 Ha.
1.47 Acres

RSDC PHASE 13

CLARIDGE
4623 SPRATT

CLARIDGE
4725 SPRATT

RSDC PHASE 15

17-1

17-2

17-3

STREET No. 11

STREET No. 12

STREET No. 5

STREET No. 8

STREET No. 1

STREET No. 2

STREET No. 3

STREET No. 4

STREET No. 6

STREET No. 7

STREET No. 9

STREET No. 10

STREET No. 13

STREET No. 14

STREET No. 15

STREET No. 16

STREET No. 17

BORRIDGE AVE.

SPRATT ROAD

CLARIDGE RIVER'S EDGE

SOLARIUM AVE

J:\125581_RSDCPhase17\7.0_Production\7.03_Design\04_Civil_LAND\Assessment Report\125581-FIG-3.1-SANITARY.dwg Layout Name: CONCEPTUAL SANITARY PLAN Last Saved By: JamesBattison Last Saved At: Jul. 15, 20

Scale	Project Title	Drawing Title	Sheet No.
NTS	ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES RSDC PHASE 17 LANDS RIVERSIDE SOUTH COMMUNITY RIDEAU RIVER AREA	CONCEPTUAL SANITARY PLAN	FIGURE 3.1

APPENDIX D

STANTEC CONSULTING LTD.
400 1331 CLYDE AVENUE
OTTAWA, ON
TEL. 613.722.4420
WWW.STANTEC.COM

Legend

- Major Water
- Parcels
- Streets
- Rideau River Study Area
- Pond 5
- Catchments
- Minor System Nodes
- Culverts
- Storm Sewers

Note:
The presented imperviousness values represent directly connected imperviousness

Client / Project:

CITY OF OTTAWA

RIVERSIDE SOUTH ISSU UPDATE

OTTAWA, ON

Title:

STORM SEWERS

Project No.: **163401101**

Scale: 0 50 100 200 Meters

Drawing No.: **STM-1**

Sheet: **3 of 7**

Revision: **0**

LEGEND :

- AREA NUMBER
- RUN OFF COEFFICIENT
- AREA IN HECTARES
- AREA BOUNDARY
- 5 YEAR DRAINAGE AREA

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4	REVISED PER CITY COMMENTS	L.M.E.	2019:07:18
3	REVISED PER CITY COMMENTS	L.M.E.	2019:06:28
2	ISSUED FOR TENDER	L.M.E.	2019:05:24
1	SUBMISSION 1 FOR CITY REVIEW	L.M.E.	2019:05:16

Riverside South

IBI GROUP
400 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

Project Title

RIVERSIDE SOUTH

PHASE 15-2, 4 & SPRATT ROAD

LICENSED PROFESSIONAL ENGINEER
L. M. ERION
13379508
2019/07/18
PROVINCE OF ONTARIO

Drawing Title

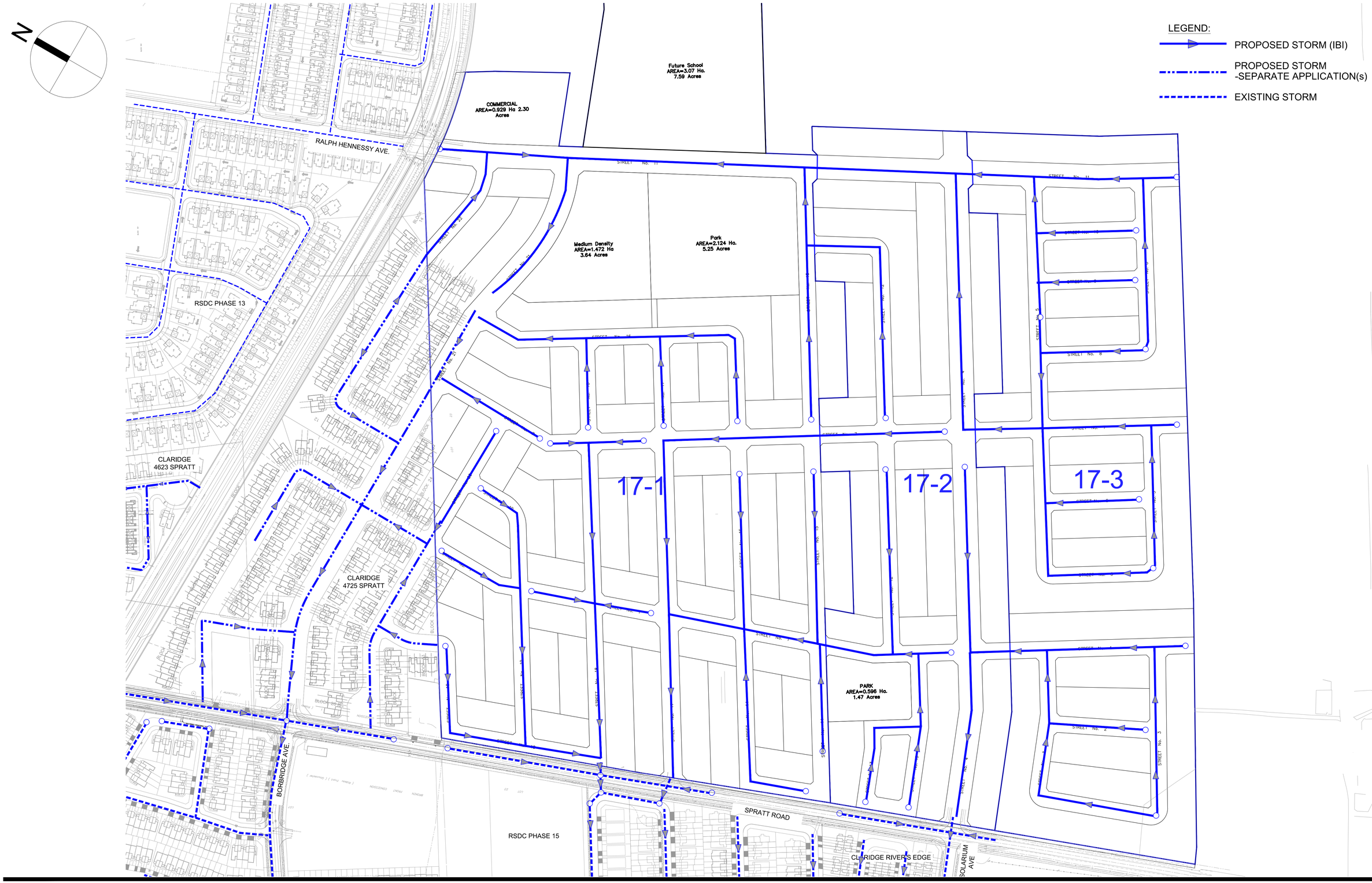
EXTERNAL STORM DRAINAGE

Scale: 1 : 3000

Design	Date
L.E.	JANUARY 2019
Drawn	Checked
C.C.	L.E.
Project No.	Drawing No.
103291	553

D07-16-17-0023 PH2

#17743



J:\125581_RSDCPhase17\7.0_Production\7.03_Design\04_Civil_LAND\Assessment Report\125581-FIG-4.1-STORM.dwg Layout Name: CONCEPTUAL STORM PLAN Last Saved By: JamesBattison Last Saved At: Jul 15, 20

Scale	Project Title	Drawing Title	Sheet No.
NTS	ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES RSDC PHASE 17 LANDS RIVERSIDE SOUTH COMMUNITY RIDEAU RIVER AREA	CONCEPTUAL STORM PLAN	FIGURE 4.1

APPENDIX E

J:\125581_RSDCPhase17\7.0_Production\7.03_Design\04_Civil_LAND\Assessment Report\125581-FIG-6.1-EROSION SEDIMENTATION PLAN.dwg Layout Name: EROSION & SEDIMENTATION CONTROL PLAN Last Saved By: JamesBattison Last Saved At: Jul. 16, 20

Scale	Project Title	Drawing Title	Sheet No.
NTS	ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES RSDC PHASE 17 LANDS RIVERSIDE SOUTH COMMUNITY RIDEAU RIVER AREA	EROSION & SEDIMENTATION CONTROL PLAN	FIGURE 5.1